*************************************		化水水水水水水水水水水水水水水水 经分类的 医克格特氏性 医克格特氏征 医克格特氏病 医克克特氏病 医克格特氏病 医克格特氏病 医克格特氏病 医克格特氏病 医克格特氏病 医克格特氏病 医克格特氏病 计记录器 计记录器 计记录器 计记录器 计记录器 计算机 计记录器 计记录器 计记录器 计记录器 计记录器 计记录器 计记录器 计记录器
****	<u> </u>	******

Release 2.1A John F. Collins. Biocomputing Research .it. Copyrigh. (c) 1993-1998 Un:/ersity of Edinburgh, U.E. istribution rights ).y Oxford Molecular Ltd

- protein database search, using Smith-Waterwan algorithm prote: MPsrch\_pp

'ie Aug 29 15:39:31 0000; MasPar time 13.05 Se.onds 799.062 Million cell:pdates/sec :uo

Tabular output no generated.

>US-09-121-017B-1 -(1-221) from US09121(17B.pep 1593 1 MAPARLFALLLFFVGGV/RS .....PRTHYGQKALLFLPLPVS5D 221 Title: Description: Perfect Score: Sequence:

Scoring table:

PAM 150 Gap 11

142080 segs, 47172406 residues Searched:

Minimum Match 0% Listing first 45 summaries Post-processing.

pir64 1:pir1 2:pir2 3:pir3 4:pir4 Database:

Mean 45.223; Variance 83.789; scale 0.540 Statistics: Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is detived by analysis of the total score distribution.

# SUMMARIES

NO.	185	182	182	181	178	172	171	169	102	83	82	82	81	80	80	78	9/	71	26	49	49	49	43
Pred. N	.18e-18	1.06e-1	.06e-18	.40e-	.91e-	.72e-17	.63e-17	.78e-1	.90e-	.60e-8	3.12e-8	.12e-8	.93e-8	.63e-80	.63e-80	.26e-	.90e-	.52e-7	.30e-56	.62e-49	.62e-4	.22e-49	.96e-4
Pr	7	Н	-	-	_	0	-	7	m	-	•	ω.	9	-	7	7	-	-	~		7	4	ς.
c	fibroblast gro		fibroblast gro	t growth fac	precursor -	fibroblast grow	t growth fac	ryudocan precursor -	t growth fac	t growth fac	precursor -	fibroblast growth fac											
Description	acidic fil		acidic fil	acidic fl	acidic f1	acidic f1	acidic fil	fiblobrast growth	ryudocan precursor	basic fib	fibroblast growth	ryudocan	fibroblast growth	fibroblast	ryudocan precursor	fibroblas							
OI.	A33665	D37360	S04147	A60721	JH0476	GKBOA	A60130	JW0055	JC1457	A48834	S00185	GKBOB	A32398	A31674	C37360	S31622	A40117	146711	A42410	A48137	S66486	JC5613	JC5941
88	~	۲٠.	ŗ,	=	7	-	~	7	7	~	7	Н	7	~	7	7	-	~	~	7	~	~	7
Length	155	155	155	155	152	155	155	155	16	16	 	1 7	0.	154	154	164	155	137	202	208	208	198	207
)uery Jatch	61.8	61.0	61.0	60.7	59.8	57.9	57.9	57.3	38.2	32.8	32.4	32.4	32.0	31.9	31.9	31.3	30.7	29.3	24.7	22.6	22.6	22.5	20.7
Score	984	972	972	967	92,	92:	92.5	 6	9	2.5	5	5 9	ر 9	2	£ )8	8ť <i>i</i>	4 39	466	394	360	360	159	329
ult No.	٦ )	7	m	4	S	ø	7	<b>ω</b>	σ	10	11	12	13	14	15	16	17	18	19	20	21	22	23

6.21e-42 1.09e-37 4.78e-37 6.98e-36 6.98e-36 1.10e-34 4.60e-32 6.62e-32 6.62e-32 6.62e-32 6.62e-32 6.62e-32 1.59e-30 3.96-28 3.16e-28 3.10e-24 1.67e-24	4.04e-24
ibroblast rowth fac deratinocyt growth if fibroblast rowth fac fibroblast rowth fac embryonic ibroblast embryonic ibroblast fibroblast growth fac fibroblast growth fac transform in protein fibroblast growth fac fibroblast growth fac	nocyte
JC5940 849501 148610 826049 826049 823595 823595 823595 82407 15010 704046 JC4018 JC40	B46289
200 200 200 200 200 200 200 200 200 200	97 2
20 11.7.7.7.7.1.1.5.6 11.5.6.6.8 11.5.6.6.8 11.5.6.6.8 11.5.6.6.8 11.5.6.6.8 11.5.6.6.8 11.5.6.6.8 11.5.6.6.8 11.5.6.8 1	14.7
2225 2225 2225 2225 2225 2225 2235 2235	5 234
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	4

## ALIGNMENTS

RESULT 1 ENTRY	A: 3665 #type complete
TITLE ALTERNATE_NAMES	ac.dic fibroblast growth fac.or 1 precursor - human brya-EGGF, endothelial cell growth factor beta; bynasin-binding growth factor beta;
ORGANISM DATE	formal_name Homo sapiens .common_name man 10ep-1999 #sequence_rev.sion 10-Sep-1999 #text_ch nge 11Sep-1999
ACCESSIONS	A33665; A32316; S18217; A43804; A24662; JH0707; S3 535; S35536; I39413; A23553 A24820; 724243; A24301; 726386; A53639
REFERENCE	TOTAL CONTRACT OF
#aucnors	Mergra, A.; Tischer, E.; Graves, .; Tumolo, A.; Tiller, J.; Gospodarowicz, D.; Abraham, J.A ; Shipley, G.D ; Fiddes, J.C.
#journal	Commun. (1 89) 164:1121-: .
#title	Structiral analysis of the gene ! ir human acidi fibroblast growth factor.
#cross-refere	#cross-references MUID:90073637
#accession	A33665
##molecule_type DNA	
##residues	I-155 ##1abel MER
##Cross-re	##Cross-relerences GB:M30491
mer enemote #authors	Warg, W.P.; Lehtoma, K.; Varbal, M.L.; Krishro, I.; Chiu,
#journal	,
#title	Cloning of the gene coding for human class 'heparin-binding growth factor and its expression in feta' issues.
#cross-refere	#cross-references MUID:89343957
#accession	A32316
##molecule_type DNA	
##residues	WAN
##Cross-re	##cross-references GB:M23087; NID:g183875; PIDN:AAA: 638.1; PID:g386768
#authors	Wang, W.P.; Quick, D.; Balcerzak, S.P.; .eedleman, S.W.;
#journal	Oncogene (1991) 6:1521-1529
#title	analysis
	growth factor gene and its preservat on in leukemia
erefer-secro#	#CTOSS-references MIID-9201819
#accession	\$18217
##molecnle	NA .
##residues	1-155 ##label WA2

##Cross-references EMBL:M23086 REFERENCE A43804

```
acidic fibroblast growth factor.
#cross-references MUID:86295741
#accession A24820
                                                                                                                                      A90122
                                                                                                                     ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CLASSIFICATION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                          #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #journal
                                                                                                                                                                #authors
                                                                                                                                                                                        #journal
                                                                                                                                                                                                                                                                                                                                                                                                                    #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 16-155
                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENETICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δχ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##residues 1-40 ##label RE;
##cross-references GB:M60515; NID:9178226; PIDN:AAA51672.1; PID:9553170;
GB:M60516; NID:9178232; PID:9553171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ERENCE THOTOT TAY, H.; Golden, J.A.; Migchielsen, A.A.J.; Goetzl, Eauthors Yu, Y.L.; Kha, H.; Golden, J.A.; Migchielsen, A.A.J.; Goetzl, E.J.; Turck, C.M. (1992) 175:1073-1080
#fitle An acidic fibroblast growth factor protein generated by alternate splicing acts like an antagonist.
#cross-references MUID:92202857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #authors Payson, R.A.; Canatan, H.; Chotani, M.A.; Wang, W.P.; Harris, S.E.; Myers, R.L.; Chlu, I.M.
#journal Nucleic Acids Res. (1993) 21:489-495
#title Cloning of two novel forms of human acidic fibroblast growth across-references MUID:93181239
#accession 835535
                                                                                                                                                                                                                                                                                                                                                                                                                                   ##molecule_type mRNA
##residues 1-155 ##label JAY
##cross-references GB:Ml3361; NID:g181941; PIDN:AAA79245.1; PID:g181942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##molecule_type mRNA
##residues 1-155 ##label YUI
##cross-references GB:X65778; NID:g396163; PIDN:CAA46661.1; PID:g396164
NGE 33535
                                                                                                                                                                                 ##residues 1-155 ##label CHI ##cross-references EMBL:X51943; NID:g32435; PIDN:CAA36206.1; PID:g32436
                   #authors Chiu, I.M.; Wang, W.P.; Lehtoma, K.
#journal Oncogene (1990) 5:755-762
#title Alternative splicing generates two forms of mRNA coding for human heparin-binding growth factor 1.
#cross-references MID:90265618
#accession A43804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A.
Biochem. Biophys. Rev. Commun. (1986) 138:611-617
The complete amino aid sequence of human brain-derived
                                                                                                                                                                                                                                                 #authors Jaye, M.; Howk, R.; Burgess, W.; Ricca, G.A.; Chiu, I.M.; Ravera, M.W.; O'Brien, S.J.; Modi, W.S.; Maciag, T.; Drohan, W.N.
#journal Science (1986) 233:541-545
#title sequence, and chromosome localization.
#cross-references MUID:86261805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Crumley, G.; Dionne, C.A.; Jaye, M.
Biochem. Biophys. Rcs. Commun. (1990) 171:7-13
The gene for human exidic fibroblast growth factor encod two upstream exons alternatively spliced to the first coding exon.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #authors Harper, J.W.; Strydom L.J.; Lobb, R.R. #journal Biochemistry (1986) 25:4997-4103 #cross-references MUID:86296647 #accession A23553 #molecule_type protein ##residues 16-155 ##label HAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ranslation nct shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                translation no: shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##cross-references GB:L01487
NCE 139412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##residues 1-58 ##label PAY
##cross-references GB:L01485 .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #cross-references MUID:90365758
#accession I39413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##molecule_type mRNA
##residues 1-58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##molecule_type mRNA
                                                                                                                                                           ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A23553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A24820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           835536
                                                                                                                                                                                                                              A24662
                                                                                                                                                                                                                                                                                                                                                                                                                  A24662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##residues
                                                                                                                                                                                        ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #accession
##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #accession
                                                                                                                                                                                                                                                                                                                                                                                                                    #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #authors
#journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                              REFERENCE
```

#title

```
#authors Gautschi-Sova, P.; Muller, T.; Bohlen, P.
#journal Biochem. Biophys. Res. Commun. (1986) 140:874-880
#title Amino acid sequence of human acidic fibroblast growth factor.
#cross-references MUID:87046871
#accession A26386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          *product fibroblast growth factor 1 *status experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Chavan, A.J.; Haley, B.E.; Volkin, D.B.; Marfia, K.E.; Verticelli, A.M.; Bruner, M.W.; Draper, J.P.; Burke, C.J.; Middaugh, C.R.
Biochemistry (1994) 33:7193-7202
Interaction of nucleotides with acidic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A. Blochem. Blochem. Res. Commun. (1986) 135:541-548 Human brain-derived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitogenic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   81 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 80
                                                                                                                                                                                                                                                                                                                                                     Gautschi, P.; Frater-Schroder, M.; Bohlen, P. FEBS Lett. (1986) 204:203-207 Partial molecular characterization of endothelial cell mitogens from human brain: acidic and basic fibroblast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #label MAT\
#binding_site carbohydrate (Asn. (covalent) #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            alternative splicing; growth factor; heparin binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #length 155 #molecular-weight 17460 #checksum 9243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #superfamily fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 984; DB 1; Lot Pred. No. 2.18e-185;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 16-30,'X',32-49 ##label GAU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##cross-references GDB:119909; OMIM:131220
#map_position 5q31.3-5q33.2
#introns 57/1; 91/3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ;·:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type protein
##residues 16-155 ##label GA2
                                 .6-155 ##label GIM
                                                                                                                                                                                                                                                 ##molecule_type protein
##residues 16-47 ##label GI2
##experimental_source brain
BNCE A91364
                                                                                                                                                                                                                                                                                                                                                                                                                                      #cross_references MUID:86275260
#accession A24301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       factor (FGF-1).
#cross-references MUID:94271773
#accession A53639
                                                                                                                                                                                                      #cross-references MUID:86186784
#accession A24243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##experimental_source brain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 61.8%;
Best Local Similarity 99.3%;
Matches 134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GDB:FGF1; FGFA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 absent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##molecule_type protein
##molecule_type protein
                                                                                                                                                                                    activities
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏ
```

Ĥ

Gaps

ï

¢

```
A60721 #type complete acidic fibroblast growth factor - golden hamster heparin-binding growth factor 1 #formal_name Mesocricetus auratus #common_name golden hamster 10.5ep-1999 #sequence_revision 10.5ep-1999 #text_change
  The nucleotide sequence of rat heparin binding growth factor
                                                                                                                     PIDN:CAA32448.1; PID:g56352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #authors Hall, J.A.; Harris, M.A.; Malark, M.; Mansson, P.E.; Zhou, H.; Harris, S.E.
#journal J. Cell. Biochem. (1990) 43:17-26
#title Characterization of the hamster DDT-1 cell aFGF/HGBF-I gene and CDNA and its modulation by steroids.
#cross-references MUID:90270291
#accession A60721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        143 GQYLAMDTDGLLYGSQTPNEECLFLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGP 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              77 GQYLAMDIEGLLYGSQTPNEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGP 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        81 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                                                                                                                 18 LPL-GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTET 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            147 AMDIDGLLYGSQIPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            growth factor; heparin binding
#length 155 #molecular-weight 17403 #checksum 9573
                                                                                                                                                                               #checksum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 155;
                                                                                                                                                                                                                       Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      not compared with conceptual translation
                                                                                                                                                                                                                                                            Indels
                                                                    ##molecule_type mRNA
##rosidues_type mRNA
##cross-references EMBL:X14232; NID:956351; PIDN:
#Fricalion #superfamily fibroblast growth factor
RRDS growth factor; heparin binding
RRY #length 155 #molecular-weight 17417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #superfamily fibroblast growth factor
                                                                                                                                                                                                                                       Pred. No. 1.06e-182;
4; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Match 60.7%; Score 967; DB 1; L. Local Similarity 97.0%; Pred. No. 1.40e-181; es 131; Conservative 2; Mismatches 2;
                                                                                                                                                                                                                       DB 2;
                                                                                                                                                                                                                   Query Match 61.0%; Score 972; Best Local Similarity 95.0%; Pred. No. 1 Matches 132; Conservative 4; Mismat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1-155 ##label HAL
                    1 (HBGF-1).
#cross-references MUID:89240051
#accession S04147
                                                                                                                                                                                                                                                                                                                                                                                                                                                              137 RTHYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     203 RTHYGQKAILFLPLPVSSD 221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    141 GQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            207 GOKAILFLPLPVSSD 221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##molecule_type DNA
##residues 1-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A60721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ALTERNATE_NAMES
                                                                                                                                      CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ŋ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Loc
Matches
  #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
                                                                                                                                                                               SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ENTRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ENTRY
                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                              Dev. Biol. (1990) 138:454-463
Isolation of CDNAs encoding four mouse FGF family members and
characterization of their expression patterns during
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##residues 1-155 ##label HEB
##cross-references GB:M30641; NID:g193284; PIDN:AAA37618.1; PID:g309236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ä
                                                                                                                                                                                                                                                                            Hebert, J.M.; Basilico, C.; Goldfarb, M.; Haub, O.; Martin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        77 GOYLAMDTEGLLYGSQTPNEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGP 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    143 GQYLAMDTDGLLYGSQTPNEECLFLEENHENNYTYISKKHARKNWFVGLKKNGSCKRGP 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This protein is an inducer of neovascularization in angiogenic disease including atherosclerosis, cancer and inflammatory
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   18 LPL-GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTET 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                       #formal_name Mus musculus #common_name house mouse
17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change
16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Goodrich, S.P.; Yan, G.C.; Bahrenburg, K.; Mansson, P.E.
Nucleic Acids Res. (1989) 17:2867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JC5231
Madial, F.; Hackshaw, K.V.; Chiu, I.M.
Mediel (1996) 179:231-236
Cloning and characterization of the mouse Fgf-1 gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #checksum 9341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S04147 #type complete
acidic fibroblast growth factor 1 - rat
heparin-binding growth factor 1
#formal name Return sorvegicus #common_name
28-Feb-1990 #sequence_revision 28-Feb-1990 #
                                                                                               DJ7360 #type complete
acidic fibroblast growth factor - mouse
aFGF; FGF-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Fgf-1
57/1; 91/3
*Superfamily fibroblast growth factor
#length 155 *molecular-weight 17417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 972; DB 2; L4
Pred. No. 1.06e-182;
4; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##residues 1-155 ##label MAD ##cross-references GB:U36456
                                                                                                                                                                                                                                                                                                                                                                            embryogenesis.
#cross-references MUID:90201563
#accession D37360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #cross-references MUID:97128312
#accession JC5231
                                                                                                                                                                                                                                                                                                                                                                                                                           ##molecule_type mRNA
##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RTHYGOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 61.0%;
Best Local Similarity 95.0%;
Matches 132; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  autoimmune disease.
                                                                                                                                                                                                                                       D37360; JC5231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     16-Jul-1999
GOKAILFLPLPVSSD 155
                    GOKAILFLPLPVSSD 221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##molecule_type DNA
                                                                                                                                                                                                                                                                                                   G.R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S04147
                                                                                                                                                       ALTERNATE_NAMES
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ALTERNATE_NAMES
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #introns
CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #journal
                                                                                                                                                                                                                                                                               #authors
                                                                                                                                                                                                                                                                                                                  #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #authors
                                                                                                                                                                                                                                   ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #journal
141
                                   207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      203
                                                                                                                                                                                                                                                                                                                                      title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENETICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #dene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SUMMARY
                                                                                               RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITE
                                                                                                                                                                                                DATE
윱
                                     ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
```

ö

Gaps

ö

```
#cross-references MUID:87016918
       Laurent, M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A94281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S03953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A94290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A91010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A94127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B24663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A24477
                                                                                                                                                                                                                                              ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##residues
                                                                                                                                                                                                                                                                                                                                                                                  #submission
                                                                                                                                                                                                                                                                                                                                                                                                                  #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     *accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #authors
                                       #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Halley, C.; Courtois, Y.; Laurent, M. Nucleic Acids Res. (1988) 16:10913 Nucleotide sequence of bovine acidic fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Renaud, F.; Desset, S.; Bugra, K.; Halley, C.; Philippe, J.M.; Courtols, Y.; Laurent, M. Blochem. Blophys. Res. Commun. (1992) 184:945-952 Heterogeneity of 3' untranslated region of bovine acidic FGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alterio, J.; Halley, C.; Brou, C.; Soussi, T.; Courtois, Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GKBOA #type complete
acidic fibroblast growth factor precursor - bovine
arGf: eye-derived growth factor II; heparin-binding growth
factor I; prostatropin
#formal_name Bos primigenius taurus #common_name cattle
13-Aug-1986 #sequence_revision 03-Feb-1994 #text_change
                                                                                                                                                                                                                                                                                                              ##residues 1-152 ##label SCH
##cross-references EMBL:X60317; NID:g1873; PIDN:CAA42869.1; PID:g1874
##experimental_source heart
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     147 AMDIDGLLYGSQIPNEECLFLERLEENHYNIXISKKHAEKNWFVGLKKNGSCKRGPRIHY 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JH0613; S02102; S02661; S22065; B24663; A94281; S03953;
A91010; A24477; B25043; C25043; A25043; A24477; A60884;
A37892; B37892; A61198; I46024; A34477; A01385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AMDTSGLLYGSQTPSEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                    ##note the hydrophobic core residues are packed around the internal symmetry axis
COMMENT This protein belongs to the fibroblast growth factor family.
CLASSIFICATION #superfamily fibroblast growth factor growth factor growth factor protein binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##residues 1-155 ##label HAL
##cross-references EMBL:X13221; NID:9347; PIDN:CAA31610.1; PID:9348
                                                                                 #journal Biochem. Biophys. Res. Commun. (1991) 180:853-859
#title Amplification and sequencing of mRNA encoding acidic fibroblast growth factor (aFGF) from porcine heart.
#accession TOTAL TOTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #binding_site heparin (Lys) #status predicted
#length 152 #checksum 1124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 152;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          . #region nuclear location signal/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 953; DB 2; Le
Pred. No. 1.91e-178;
2; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##molecule_type DNA
##residues 58-155 ##label REN
                                JH0476; S20072
JH0476
Schmidt, M.; Sharma,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #cross-references MUID:92246990
#accession JH0613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tcross-references MUID:89083506
taccession S02102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          59.8%;
ilarity 97.0%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            18-Jun-1999
16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GOKAILFLPLPV 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local Similarity
Matches 128; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ENTRY
TITLE
ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                           #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
#authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #journal
                                ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  22-28
133
MMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     å
```

```
#authors Abraham, J.A.; Mergia, A.; Whang, J.L.; Tumolo, A.; Friedman, J.; Hjerrild, K.A.; Gospodarowicz, D.; Fiddes, J.C.
#journal science (1986) 233:545-548
#title Nucleotide sequence of a bovine clone encoding the anglogenic protein, basic fibroblast growth factor.
#cross-references MUID:86261806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gimenez-Gallego, G.; Rodkey, J.; Bennett, C.; Rios-Candelore, M.; Disalvo, J.; Thomas, K. Science (1985) 230:1385-1388 Brain-derived acidic fibroblast growth factor: complete amino acid sequence and homologies.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #authors Quinkler, W.; Maasberg, M.; Bernotat-Danielowski, S.; Luethe,
N.; Sharma, H.S.; Schaper, W.
#journal Bur. J. Biochem. (1989) 181:67-73
#title Isolation of heparin-binding growth factors from bovine,
porcine and canine hearts.
#cross-references MUID:89231704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Maciag, T.
Proc. Natl. Acad. Sci. U.S.A. (1986) 83:7216-7220
Structural evidence that endothelial cell growth factor beta
is the precursor of both endothelial cell growth factor
alpha and acidic fibroblast growth factor.
                        #fitle Characterization of a bovine acidic FGF cDNA clone and its expression in brain and retina.
#cross_references MUID:89078619
#accession S0261
                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type mRNA
##residues 1-18 ##label PHI
##cross-references EMBL:X66446; NID:g411; PIDN:CAA47063.1; PID:g412
                                                                                                                                                                                                                                   ##cross-references EMBL:X14032; NID:g322; PIDN:CAA32192.1; PID:g323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #authors Bohlen, P.; Esch, F.; Baird, A.; Gospcdarowicz, D. #journal EMBO J. (1985) 4:1951-1956 #title Acidic fibroblast growth factor (FGF) from bovine brain: amino-terminal sequence and comparison with basic FMF. #cross-references MUID:86055750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Burgess, W.H.; Mehlman, T.; Marshak, D.R.; Fraser, B.A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #title Complete primary structure of prostatropin, a prostate epithelial cell growth factor. #cross-references MUID:87026586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Crabb, J.W.; Armes, L.G.; Carr, S.A.; Johnson, G.D.; Bordoli, R.S.; McKeehan, W.L.
Blochemistry (1986) 25:4988-4993
                                                                                                                                                                                                                                                                                                  Philippe, J.M.
submitted to the EMBL Data Library, May 1992
S22065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##molecule_type protein
##residues 2,'GE',5-155 ##label CRA
FEBS Lett. (1988) 242:41-46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##molecule_type mRNA
##residues 62-102 ##label ABR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##molecule_type protein
##residues 16-155 ##label GIM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##molecule_type protein
##residues 16-45 ##label QUI
NNCE A91010
                                                                                                                                                                                                1-155 ##label ALT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #cross-references MUID:86070224
#accession A94281
                                                                                                                                                             ##molecule_type mRNA
```

ŝ

```
ALTERNATE_NAMES
                                                                                                                             #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
#authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #journal #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #journal Kuo, M.D.; Huang, S.S.; Huang, J.S.
#journal J.Biol. Chem. (1990) 265:16455-16463
#title Acidic fibroblast growth factor receptor purified from bovine liver is a novel protein tyrosine kinase.
#accession A37892
##molecui-
                                                                                                                                                             this form was designated acidic fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      oţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Philippe, J.M.; Renaud, F.; Desset, S.; Laurent, M.; Mallet, J.; Courtis, Y.; Edwards, J.B.
Biochem. Bloophys. Res. Commun. (1992) 188:843-850
Cloning of two different 5' untranslated exons of bovine acidic fibroblast growth factor by the single strand ligation to single-stranded CDNa methodology.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             22-30,'X',32-38 ##label KU2
this form was designated brain-derived growth factor A
                                                                                                                                                                                                                       22-155 ##label BU3
this form was designated alpha endothelial cell growth
                ##molecule_type protein
##residues 2-155 ##label BUR
##note this form was designated beta endothelial cell growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Disalvo, J.

J. Protein Chem. (1987) 6:163-171

Primary structure and mitogenic and angiogenic activities brain-derived acidic fibroblast growth factor.

A60884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a form
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hill, C.E.; Belford, D.A.; Godovac-Zimmermann, J.; Hendry, I.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11-26;28-50;53-110,'H',112,'NTY';134-155 ##label HIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Thomas, K.A.; Gimenez-Gallego, G.; Rios-Candelore, M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##notecule_type protein
##residues 62-76,'X',78-86 ##label KUO
##residues this sequence is an amino-terminal fragment of
##note designated as brain-derived growth factor B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Brain Res. Dev. Brain Res. (1991) 63:13-19
Class 1 heparin binding growth factor promotes the
differentiation but not the survival of ciliary n
                                                                                                                                                                                                                                                                                #autnors Strydom, D.J.; Harper, J.W.; Lobb, R.R.
#journal Blochemistry (1986) 25:945-951
#title Amino acid sequence of bovine brain derived class heparin-binding growth factor.
#cross-references MUID:86187766
#accession A24539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##molecule_type protein
##residues 16-155 ##label THO
                                                                                                                                          16-155 ##label BU2
                                                                                                                                                                                                                                                                                                                                                                                                                                               16-155 ##label STR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #cross-references MUID:92164087
#accession A61198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          oss-references MUID:93075172
                                                                                                                                                                                                                                                                 factor
                                                                                 factor
                                                                                                                                                                                                    ##molecule_type protein
##residues 22-155 #
                                                                                                                   ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                        ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      , type mRNA
                                                                                                  C25043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             146024
                                                                                                                                                                             A25043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A60884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B37892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 I46024
                                                                                                                                          ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #accession
#accession
                                                                                                  #accession
                                                                                                                                                                                    #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #accession
                                                                                                                                                           ##note
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##note
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  authors
                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
```

1-18 ##label PH2
-es EMBL:X66446; NID:g411; PIDN:CAA47063.1; PID:g412
- Hosh1, H.; Hong, Y.M.; Suzuki, T.; Rato, T.;

```
##status
##status
##status
##status
##status
##status
##status
##status
##residues
16-24 121-127;134-143 ##label SAS
##experimental_source heart

##resperimental_source heart

##operimental_source heart

##operimental_source heart

##resperimental_source heart

##respecimental_source heart

##respecimental_source_heart

##respecimental_source_heart

##respecimental_source_heart

##respecimenta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #authors Risau, W.; Gautschi-Sova, P.; Boehlen, P. EMBO J. (1988) 7:959-962 #journal EMBO J. (1988) 7:959-962 #title Endothelial cell growth factors in embryonic and adult chick brain are related to human acidic fibroblast growth factor.#cross-references MUID:88296438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##residues 1 1-155 ##label SCH
##cross-references GB:S63263; NID:9234372; PIDN:AAB19629.1; PID:9234373
                                                                                                     factor from bovine lac myocytes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      143 GQXLAMDTDGLLYGS():PNEECLFLERLEENHYNTYISKKHARKNW: VGLKKNGSCKRGP 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               77 GOFLAMDTDGLLYGSO :: NEECLFLERLEENHYNTYISKKHAEKHW - /GLKKNGRSKLGP 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18 LPL-GNYKKPKLLYCSN:3YFLRILPDGTVDGTKDRSDQHIQLQLCAESIGEVYIKSTET 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              acidic (ibroblast growth factor - chicken
endothelial cell growth factor
#formal_name Gallus gallus #common_narw: chicken
03-Mar-1993 #sequence_revision 03-Mar-1993 #text_change
16-Uw:-1993 #seduence_revision 03-Mar-1993 #text_change
A60130; S02639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Schnuerch, H.; Risau, W.
Development (1991) 111:1143-1154
Differentiating and mature neurons empress the acidic fibroblast growth factor gene during chick neural
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 923; DB 1; Length 155; Pred. No. 9.72e-172; 7; Mismatches 5; Indels
#journal J. Biol. Chem. (1989) 264:17606-17612
#title Purification of acidic fibroblast growth factors-references MUID: 00008933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##molecule_type protein
##residues 22-30,'X',32-44,'X',46-48 ##label RIS
FICATION #superfamily fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #type complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Note: remainder of annotation: omitted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #cross-references MUID:91347925
#accession A60130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type mRNA
##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        137 RTHFGQKAILFLPLPV3SD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 57.9%;
Best Local Similarity 90.4%;
Matches 126; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                devel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S02639
                                                                                                                                                                                                                                        A34477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
```

```
$23636
                                                                                                                                                                                                                                                                                                                        ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #authors
#journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          146-170
39,61,63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                            19-198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                        GENETICS
                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #journal Biochem. Biophys. Res. Commun. (1998) 246:182-191
#title Primary structure of orine fibroblast growth factor-1 deduced
by protein and cDNA analysis.
#cross-references MUID:98262939
                                                                  1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sidues 1-155 ##label GRI
This protein is a potent mitogenic factor for NIH 3T3 fibroblasts
in the absence of heparin.
TION #superfamily fibroblast growth factor
#length 155 #molecular-weight 17557 #checksum 8890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Grieb, T.W.; Ring, M.; Brown, E.; Palmer, C.; Belle, N.;
Donjerkovic, D.; Chang, H.; Yun, J.; Subramanian, R.;
Forozan, F.; Guo, Y.; Vertes, A.; Winkles, J.A.; Burgess,
                                                                                                                       77 GOYLAMDINGLLYGSQLPGEECLFLERLEENHYNTYISKKHADKNWFVGLKKNGNSKLGP 136
                                                                                                                                                                                        77 GOFLAMDINGLLYGSQTPSEECLFLERLEENHYNTYISKKHAEKNWFIGLKKNGSSKLGP 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    143 GOYLAMDIDGILIYGSQIPNEECLFIERLEENHYNTYISKKHARKNWFVGLKKNGSCKRGP 202
                                                                                                    18 LPL-GNYKKPKLLYCSNGGHFLRILPDGKVDGTRDRSDQHIQLQLSAEDVGEVYIKSTAS 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18 LPL-GNYKKPKLLYCSNGGYFLRILPDGRVDGTKDRSDQHIQLQLYAESIGEVYIKSTET 76
                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                        #formal_name Ovis sp. #common_name sheep
17-Jun-1998 #sequence_revision 10-Jul-1998 #text_change
07-May-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ryudocan precursor - human
amphigiycan; core protein
#formal_name Homo sapiens #common_name man
30-Sep-1993 #sequence_revision 30-Sep-1993 #text_change
 #molecular-weight 17322 #checksum 7617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            T.; Inazawa, J.; Takamatsu, J.; Rosenberg,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Satio, H.
Biochem. Biophys. Res. Commun. (1993) 190:814-822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 155;
                                   Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 912; DB 2; Length 155
Pred. No. 2.78e-169;
9; Mismatches 5; Indels
                             Score 922; DB 2; L4
Pred. No. 1.63e-171;
7; Mismatches 7;
                                                                                                                                                                                                                                                                                                                                        JW0055 #type complete
fiblobrast growth factor-1 - sheep
FGF-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #type complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RIHFGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       137 RTHYGQKAILFLPLPVSAD 155
                                                                                                                                                                                                                                                         Query Match 57.3%;
Best Local Similarity 89.2%;
Matches 124; Conservative
                                 / Match 57.9%;
Local Similarity 89.2%;
Nes 124; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JC1457; S26695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       17-Mar-1999
#length 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Kojima,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JC1457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JC1457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##residues
                                                                                                                                                                                                                                                                                                                                                        TITLE
ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ALTERNATE NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION
SUMMARY
                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #journal
                                                                                                                                                                                                                                                                       203
                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   203
                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
 SUMMARY
                                                                                                                                                                                                                                                                                                                        ESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
                                                                                                                                                                   g
                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                      d
                                                                                                                                                                                                                                                                         δŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                     g
                                                                                                                                     δ
```

```
#authors David, G.; van der Schueren, B.; Marynen, P.; Cassiman, J.J.;

#journal van den Berghe, H.

#journal J. Cell Biol. (1992) 118:961-969

#title Molecular cloning of amphigiycan, a novel integral membrane heparan sulfate proteoglycan expressed by epithelial and fibroblastic cells.

#cross-references MUD:92363936

#accession S26695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         chondroitin sulfate proteoglycan; core protein; glycoprotein; heparan sulfate; transmembrane protein
protein: Molecular cloning and
of the cDNA, and chromosomal localization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #product ryudocan #status predicted #label MAT\
#domain transmembrane #status predicted #label TMM\
#binding_site heparan sulfate (Ser) (covalent) #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Borja, A.Z.; Meljers, C.; Zeller, R.
Dev. Biol. (1993) 157:110-118
Expression of alternatively spliced bFGF first coding exons
and antisense mRNAs during chicken embryogenesis.
                                                                                                                                 ##residues 1-198 ##label KOJ
##cross-references DDBJ:D13292; NID:9286020; PID:d1003053; PID:9286021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #domain signal sequence #status predicted #label SIG\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #authors Mitrani, B.; Gruenbaum, Y.; Shohat, H.; Ziv, T.
#journal Development (1990) 109:387-393
#fille Fibroblast growth factor during mesoderm induction in the early chick embryo.
#cross-references WUID:90382254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sequence extracted from NCBI backbone (NCBIN:131000,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 MAPARLFALLLFFVGGVAESIRETEVIDPQDLLEGRYFSGALPDDEDVVGPGQESDDFEL 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A48834 #type complete
basic fibroblast growth factor - chicken
#formal_name Gallus gallus #common_name chicken
01-Dec-1993 #sequence_revision 18-Nov-1994 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   predicted #molecular-weight 21641 #checksum 4522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 2; Length 198;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##residues 1-11,'L',13-198 ##label DAV
##cross-references EMBL:X67016; NID:928679; PID:928680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 608; DB 2; L Pred. No. 3.90e-102;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61 SGSGDLDDLEDSMIGPEVVHPLVPLDNH 88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SGSGDLDDLEDSMIGPEVVHPLVPLDAN 88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##molecule_type nucleic acid
##residues 1.189 ##label BOR
##experimental_source embryo
##note sequence extracted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCBIP: 131001)
Human ryudocan core
                         characterization
                                                                         #cross-references MUID:93176185
#accession JC1457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #cross-references MUID:93246053
                                                                                                                                                                                                                                                                                                                                                                                                                                                         preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 38.2%;
Best Local Similarity 97.7%;
Matches 86; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A48834; S23636
A48834
                                                                                                                              ##molecule_type mRNA
                                                        of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A48834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #map_position 20q12
KEYWORDS
```

```
Abraham, J.A.; Mergia, A.; Whang, J.L.; Tumolo, A.; Friedman, J.; Hjerrild, K.A.; Gospodarowicz, D.; Fiddes, J.C. Science (1986) 233:945-548
Nucleotide sequence of a bovine clone encoding the anglogenic protein, basic fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                  ##INTEGRIQUES 3-157 ##label ABR ##cross-references GB:M13440; NID:g163049; PIDN:AAA30518.1; PID:g163050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Milner, P.G.; Li, Y.S.; Hoffman, R.M.; Kodner, C.M.; Siegel, N.R.; Deuel, T.F.
Biochen. Biophys. Res. Commun. (1989) 165:1096-1103
A novel 17 kD heparin-binding growth factor (HBGF-8) in bovine uterus: purification and N-terminal amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #authors Bertolini, J.; Hearn, M.T.W.
#journal Mol. Cell. Endocrinol. (1987) 51:187-199
#title Isolation, characterisation and tissue localisation of an
#title Nuterminal-truncated variant of fibroblast growth factor.
#cross-references WUID:87247652
#accession A61550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #authors Ueno, N.; Baird, A.; Esch, F.; Shimasaki, S.; Ling, N.; Guillemin, R. Guillemin, R. Hjournal Regul. Pept. (1986) 16:135-145
#title Purification and partial characterization of a mitogenic fuctor from bovine liver: structural homology with basic fibroblast growth factor. #cross:references MUID:87119165 #accession A60310
                                                                                                                                                                                                                                                                                                                                                                          ##experimental_source pituitary gland
NCE A90924
thors Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Fiddes,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #authors Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R. #journal Mol. Cell. Endocrinol. (1987) 49:189-194
#title Isolation and partial characterization of basic fibroblast growth factor from bovine testis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                     #journal Cold Spring Harb. Symp. Quant. Biol. (1986) 51:657-668
#title Human basic fibroblast growth factor: nucleotide sequence, genomic organization, and expression in mammalian cells.
#cross-references MUID:87217066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1-14 ##label MIL demonstration of a possible alternative initiator or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##molecule_type protein
##residues 27-35,'x',37-41 ##label UE3
##experimental_source testes
##note this form appears to be identical to the renal form
                                          A24663; A32878; A33784; A61550; A61551; A60310; A61094; A01386; A60316; A22054; A24819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R. Biochem. Biophys. Res. Commun. (1986) 138:580-588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##molecule_type protein
##residues 16-35 ##label BER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##molecule_type mRNA : ##residues 3-157 ##label AB2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             splice junction
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #cross-references MUID:90121211
                     10-Sep-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #accession A60310
##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sednence.
                                                                                                                                                                                                                                                                                                       ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A61.550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A60310
                                                                                             A94290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A33784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A61551
                                                                                                                                                                                                                                                                          A24663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A33784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A61551
                                                                                                                                                                                                                                                     *cross-references
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##residues
                                                                                                                                                                                                                                                                          #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##note
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #journal
                                                                                                                       #authors
                                             ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                               REFERENCE
                                                                                                                                                                                               #title
                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                               ##residues 7 95-128 ##label MIT ##residues 75-128 ##label MIT ##cross-references EMBL:X56804; NID:962855; PIDN:CAA40139.1; PID:962856 ##cross-references EMBL:X56804; NID:962855; PIDN:CAA40139.1; PID:962856 #FICATION ##superfamily froblast growth factor #superfamily factor # #superfamily # #molecular-weight 20312 # #checksum 8538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Primary structure of ovine pituitary basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GKBOB #type fragment
basic fibroblast growth factor precursor - bovine (fragment)
brGF; kidney-derived growth factor; prostatropin
brGF; kidney-derived growth factor; prostatropin
brGF primigenius taurus #common_name cattle
13-Aug-1986 #sequence_revision 02-Jun-1995 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Simpson, R.J.; Moritz, R.L.; Lloyd, C.J.; Fabr1, L.J.; Nice, E.C.; Rubira, M.R.; Burgess, A.W.
FEBS Lett. (1987) 224:128-132
                                                                                                                                                                                                                                                                                                                          AMKEDGRLLALKCATEECFFFERLESNNYNTYRSRKYSD--WYVALKRTGQYKPGPKTGP 175
                                                                                                                                                                                                                                                                                                                                                                                                                             147 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFYGLKKNGSCKRGPRTHY 206
                                                                                                                                                                                                                                                                                               58 GHFKDPKRLYCKNGGFFLRINPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVSANRFL 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       75 AMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYRLGPRTGP 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #common_name domestic sheep
10.sep-1999 #sequence_revision 10-Sep-1999 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #region heparin binding #status predicted\
#region heparin binding #status predicted
#length 146 #molecular-weight 16434 #checksum 3560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #formal_name Ovis orientalis aries, Ovis ammon aries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 146;
                                                                                                                                                                                             Length 189;
                                                                                                                                                                                          Ouery Match 32.8%; Score 522; DB 2; Length 189
Best Local Similarity 54.5%; Pred. No. 1.60e-83;
Matches 73; Conservative 23; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 32.4%; Score 516; DB 1; Length 146
Best Local Similarity 55.2%; Pred. No. 3.12e-82;
Matches 74; Conservative 22; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       growth factor; heparin binding; mitogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S00185 #type complete
basic fibroblast growth factor - sheep
prostatropin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ____i-146 ##label SIM
#superfamily fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #cross-references MUID:88055577
##molecule_type DNA
##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10-Sep-1999
S00185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               207 GQKAILFLPLPVSS 220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GOKAILFLPMSAKS 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       176 GOKAILFLPMSAKS 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          actor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
ALTERNATE_NAMES
ORGANISM
DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION
KEYWORDS
FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ALTERNATE_NAMES ORGANISM
                                                                                                                  CLASSIFICATION
SUMMARY
                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       18-22
107-110
MMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             133
                                                                                                                                                                                                                                                                                                                                                                                                     118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             207
```

REFERENCE

DATE

RESULT TITLE

셤

ö

å

#title

RESULT

8 ò 엄 ò

용 ò ENTRY

œ

```
A26642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A61537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A32398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##residues
                      29-33,118-121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ALTERNATE_NAMES
                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           *accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #note
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSIONS
                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CONTAINS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                      SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       *product basic fibroblast growth factor, uterine form
*status predicted *label MAII\
*product basic fibroblast growth factor, pituitary gamma
form *status experimental *label MAI2\
*product basic fibroblast growth factor, pituitary alpha
form *status experimental *label MAI3\
*product basic fibroblast growth factor, pituitary short
form *status predicted *label MAI3\
*product basic fibroblast growth factor, pituitary short
form *status predicted *label MAI4\
*product basic fibroblast growth factor, hepatic form
                                                                                                                                                                                          ::
G4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #journal Proc. Natl. Acad. Sci. U.S.A. (1985) 82:6507-6511
Primary structure of bovine pitultary basic fibroblast growth factor (FGF) and comparison with the amino-terminal sequence of bovine brain acidic FMF.
#cross-references MUID:86016731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #authors Baird, A.; Esch, F.; Boehlen, P.; Ling, N.; Gospodarowicz, D. #journal Regul. Pept. (1985) 12:201-213
#title Tsolation and partial characterization of an endothelial cell growth factor from the bovine kidney: homology with basic fibroblast growth factor.
#Cross-references MID:86095426
#accession A60316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #authors Bohlen, P.; Baird, A.; Esch, F.; Ling, N.; Gospodarowicz, D. #journal Proc. Natl. Acad. Sci. U.S.A. (1994) 81:5364-5368 | #title Isolation and partial molecular characterization of pituitary #cross-references WUID:84298139
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Esch, F.; Baird, A.; Ling, N.; Ueno, N.; Hill, F.; Denoroy, L.; Klepper, R.; Gospodarowicz, D.; Bohlen, P.; Guillemin,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sidues 12-26 ##label BOH

The acidic and basic fibroblast growth factors are the major endcthelial-cell growth factors. Both are angiogenic agents in vivo and are potent mitogens for a variety of mesoderm-derived cell types in vitro (although bFGF is 30-100 times more potent than aFGF in stimulating the proliferation of normal diploid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This protein binds heparin more strongly than does aFGF.

**Superfamily fibroblast growth factor alternative splicing; angiogenesis; growth factor; heparin binding; mitogen
                                                                                                                                                                                                         #journal Endocrinology (1986) 118:82-90
#title Isolation of fibroblast growth factor from bovine adrenal gland: physicochemical and biological characterization.
#cross-references WUID:86081530
                                                                                                                                                                                          Gospodarowicz, D.; Baird, A.; Cheng, J.; Lui, G.M.; Esch,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #status experimental #label MAT5\
#product basic fibroblast growth factor, renal form
                                                                                     the amino end of this form was blocked; the peptide composition matched what was thought to be the signal
  basic
terminal extended form of
                                                                                                                                                                                                                                                                                                                                                                                  12-25,27-35,'X',37-40 ##label GOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##experimental_source pituitary gland NCE A60316
                 fibroblast growth factor
#cross-references MUID:86295737
                                                                                                                                                                                                                                                                                                                                                                                               ##experimental_source adrenal gland
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##molecule_type protein
##residues 12-157 ##label ESC
                                                                                                                                                                                                                                                                                                                                                      ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type protein
                                                                    annotation
                                                                                                                                        sequence
A61094
                                                                                                                                                                                                                                                                                                                                A61094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A01386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A22054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cells)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##residues
                                                                                                                                                                                                                                                                                                                                                                                     ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                     #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #accession
                                                                    contents
                                                                                                                                                                                        #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       16-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    23-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 27-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURE
1-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4-157
                                                                                          #note
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KEYWORDS
```

```
##residues _____ 56-210 ##label KUR
##cross-references GB:M27968; NID:9182562; PIDN:AAA52448.1; PID:9182563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##residues 1-210 ##label PRA ##cross-references GB:J04513; NID:g183083; PIDN:AAA52531.1; PID:g459811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #authors Prats, H.; Kaghad, M.; Prats, A.C.; Klagsbrun, M.; Lelias, J.M.; Liauzun, P.; Chalon, P.; Tauber, J.P.; Amalric, F.; Smith, J.A.; Caput, D.
#journal Proc. Natl. Acad. Sci. U.S.A. (1989) R6:1836-1840
#title High molecular mass forms of basic fioroblast growth factor are initiated by alternative CUG colons.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ala
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Fiddes,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A32398 #type complete basic fibroblast growth factor precursor, 22.5K form - hum bFGF; fibroblast growth factor 2; prostatic growth factor;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Cold Spring Harb. Symp. Quant. Biol. (1986) 51:657-668
Human basic fibroblast growth factor: nucleotide sequence,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Shibata, F.; Baird, A.; Florkiewicz, R.Z.
Growth Factors (1991) 4:277-287
Functional characterization of the human basic fibroblast
                                                                                                                                                                                                                                                                                                                               A32398; A61537; A26642; B32878; S00297; A54316; B54316; A35824; A25824; B24243; B24301; S42242; B55784; I52267;
                                                                                                                                                                                                                                                                                                                                                                                                              86 AMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGPKTGP 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    prostatropin
basic fibroblast growth factor, 18K form
#formal_name Homo sapiens #common_name man
31-Jul-1989 #sequence_revision 31-Dec-1993 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     as
                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                     26 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL
                 1-114 ##label SHI authors translated the codon G5A for residue 47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              basic
                                                                                                                                                                                                                                                   ,
,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #authors Kurokawa, T.; Sasada, R.; Iwane, M.; Igarashi, K.
#journal FEBS Lett. (1987) 213:189-194
#title Cloning and expression of CDNA encoding human basi
fibroblast growth factor.
#cross-references MUID:87162468
                                                                                                                                                                                           Length 157;
                                                                                                                                                                                                                   Pred. No. 3.12e-82;
22; Mismatches 36; Indels
#status experimental #label MAT6\
                                                                                                                                                                                           DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     growth factor gene promoter. #cross-references MUID:92110035
                                                                                                                                                                                           Score 516;
                                                                                                                                                                                     32.4%;
Local Similarity 55.2%;
nes 74; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    207 GOKAILFLPLPVSS 220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              144 GOKAILFLPMSAKS 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type DNA
```

```
#accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #accession
                                                                                                                                                                                                                                                                                                                                                                                                               #accession
                             REFERENCE
#authors
#journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #journal
                                                                                                                                                                                                                                                                               #authors
                                                                                                                                                                                                                                                                                                                      #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENETICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
                                                                                                                                                                               Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Friedman, J.; Gospodarowicz, D.; Fiddes, J.C.
BENBO J. (1986) 5:2523-2528
Human basic fibroblast growth factor: nucleotide sequence and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Feige, J.J.; Bradley, J.D.; Fryburg, K.; Farris, J.; Cousens, L.C.; Barr, P.J.; Balrd, A.
J. Cell Blol. (1989) 109:3105-3114
Differential effects of heparin, fibronectin, and laminin on the phosphorylation of basic fibroblast growth factor by protein kinase C and the catalytic subunit of protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Story, M.T.; Esch, F.; Shimasaki, S.; Sasse, J.; Jacobs, S.C.; Lawson, R.K.

# journal Biochem. Blophys. Res. Commun. (1987) 142:702-709

#title Amino-terminal sequence of a large form of basic fibroblast growth factor isolated from human benign prostatic hyperplastic tissue.

#cross-references MUID:87156686

#accession A25824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #authors Shimoyama, Y.; Gotoh, M.; Ino, Y.; Sakamoto, M.; Kato, K.; Hirohashi, S.
#journal John J. Cancer Res. (1991) 82:1263-1270
#title Characterization of high-molecular-mass forms of basic fibroblast growth factor produced by hepatocellular carcthonam cells: possible involvement of basic fibroblast growth factor in hepatocarcinogenesis.
#cross-references WUID:92091228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A. Blochem. Blophys. Res. Commun. (1986) 135:541-548 Human brain-derived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitogenic
genomic organization, and expression in mammalian cells.
#cross-references MUID:87217066
#accession B32878
                                                                                           56-210 ##label ABR the authors translated the codon GAA for residue 108 Gly
                                                                                                                                                                                                                                                                                                                                                        ##molecule_type DNA
##residues 1-155 ##label AB2
##note the authors translated the codon GAA for residue 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##molecule_type protein
##residues /xxx/,19,'x',21-29 ##label SH2
##note sequence extracted from NCBI backbone (NCBIP:71594)
                                                                                                                                                                                                                                                                                                                                          not compared with conceptual translation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##molecule_type protein
#*residues 65-102,'X',104-105 ##label GIM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             genomic organization. #cross-references MVID:87053817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##molecule_type protein
##residues 57-77 ##label STO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##experimental_source prostate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           kinase A.
#cross-references MUID:90078343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #cross-references MUID:86186784
#accession B24243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     activities
                                                                                                                                                                                                                                                                                                                                                                                                                                 Gly
                                                               ##molecule_type mRNA
                                                                                                                                                             500297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A54316
                                                                                                                                                                                                                                                                                                                   S00297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A33624
                                                                                             ##residues
                                                                                                                                                                                                                                                                                                                                            ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #accession
##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #accession
                                                                                                                                                                                                                                                                                                                      #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #journal #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #authors
                                                                                                                                                                                    #authors
                                                                                                                                                                                                                               #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  # journal
                                                                                                                                                                                                                                                      #title
                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                   ERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
```

```
*superfamily fibroblast growth factor alternative initiators; anglogenesis; growth factor; heparin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Watson, R.; Anthony, F.; Pickett, M.; Lambden, P.; Masson, G.M.; Thomas, E.J.
Biochem. Blophys. Res. Commun. (1992) 187:1227-1231
Reverse transcription with nested polymerase chain reaction shows expression of basic fibroblast growth factor transcripts in human granulosa and cumulus cells from in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pantoliano, M.W.; Horlick, R.A.; Springer, B.A.; Van Dyk, D.E.; Tobery, T.; Wetmore, D.R.; Lear, J.D.; Nahapetian, A.T.; Bradley, J.D.; Sisk, W.P.
Biochemistry (1994) 33:1029-10248
Multivalent ligand-receptor binding interactions in the fibroblast growth factor system produce a cooperative growth factor and heparin mechanism for receptor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #authors Patry, V.; Bugler, B.; Amalric, F.; Prome, J.C.; Prats, H. #journal FEBS Lett. (1994) 349:23-28
#title Purification and characterization of the 210-amino acid recombinant basic fibroblast growth factor form (FGF-2).
                                                                                                                                                                                                                                                                                                                                   Sommer, A.; Brewer, M.T.; Thompson, R.C.; Moscatelli, D.; Preste, M.; Rifkin, D.B.
Biochem. Biophys. Res. Commun. (1987) 144:543-550
A form of human basic fibroblast growth factor with an
##experimental_source brain
BNCE
A91364
authors Gautschi, P.; Frater-Schroder, M.; Bohlen, P.
Ournal FBBS Lett. (1986) 204:203-207
Partial Molecular characterization of endothelial cell
itle mitogens from human brain: acidic and basic fibroblast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #product basic fibroblast growth factor, 22.5k form
#status predicted #label MA2\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##cross-references EMBL:M17599; NID:g183086; PIDN:AAA52534.1;
PID:g183087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##molecule_type protein
##residues 39-53;65-88 ##label PAT
##residues recombinant gene expressed in Escherichia
                                                                                                                                                                                                                                    cession
##molecule_type protein
##residues 65-88, X', 90-98, X', 100 ##label
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #gene GDB:FGF2; FGFB
##cross-references GDB:119910; OMIM:134920
#map_position 4q25-4q27
#tart_codon CTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        vitro fertilisation patients
                                                                                                                                                                                                                                                                                                                                                                                                                                                 extended amino terminus. #cross-references MUID:87213238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##status preliminary
##molecule_type mRNA
##residues 54-210 ##label SOM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##molecule_type protein
##residues 54-71 ##label PAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 binding; mitogen
                                                                                                                                                                       growth factors. #cross-references MUID:86275260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #cross-references MUID:93038590
#accession I52267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #cross-references MUID:94347757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          dimerization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          542242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B55784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               546253
                                                                                                                                                                                                                           B24301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         152267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #start_codon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURE
1-210
```

```
REFERENCE
                                                                                                                                                                                                                                                                                RESULT
                                                                                                                                                                                                                                                                                                                                                   DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                        윤
                                                                                          ò
                                                                                                                         셤
                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                           ò
                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Shimasaki, S.; Emoto, N.; Koba, A.; Mercado, M.; Shibata, F.; Cooksey, K.; Baird, A.; Ling, N. Biochem. Biochys. Res. Commun. (1988) 157:256-263 Complementary DNA cloning and sequencing of rat ovarian basic fibroblast growth factor and tissue distribution study of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #authors El-Hüsseini, A.E.D.; Paterson, J.A.; Myal, Y..; Shiu, R.P.C.
#journal Blochim. Biophys. Acta (1992) 1131:314-316
#title PCR detection of the rat brain basic fibroblast growth factor (bFGF) mRNA containing a unique 3' untranslated region.
#cross-references MUID:92329546
#accession S24309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##residues 35-154 ##label ELH ##cross references EMBL:X61697; NID:956143; PIDN:CAA43863.1; PID:956144 CLASSIFICATION #superfaully fibroblast growth factor Growth factor Growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##residues 1-154 ##label KUR
##cross-references EMBL:X07285; NID:956203; PIDN:CAA30265.1; PID:956204
                                                                                                                                                                       GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL 138
                                                                                                                                                                                             Kurokawa, T.: Seno, M.: Igarashi, K.
Nucleic Acids Res. (1988) 16:5201
Nucleotide sequence of rat basic fibroblast growth factor
                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                #formal_name Rattus norvegicus #common_name Norway rat 21.May-1990 #sequence_revision 21-May-1990 #text_change
       form
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #domain signal sequence #status predicted #label
#product basic fibroblast growth factor #status
predicted #label MAT
#length 154 #molecular-weight 17139 #checksum 3026
;
                                                                                                                                                                                                                                                                                                                                                                                                               A31674 #type complete
basic fibroblast growth factor precursor - rat
bFGF
                                                                                                        Length 210;
                                                                                                      Score 509; DB 2; Length 210 Pred. No. 9.93e-81; 23; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                preliminary; translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  16-Jul-1999
A31674; S00876; S24309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #cross-references MUID:88262516
#accession S00876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #cross-references MUID:89061721
#accession A31674
                                                                                                      Query Match
Best Local Similarity 54.5%;
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                 197 GQKAILFLPMSAKS 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          its mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A31674
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #authors
#journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSIONS
REFERENCE
                                                     171-174
                                                                                                                                                                       79
   65-210
                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KEYWORDS
FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10-154
                                     82-86
                                                                    SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                               RESULT
ENTRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                         셤
                                                                                                                                                                                                         Ω
                                                                                                                                                                                                                                          ద
                                                                                                                                                                                                                                                                          ò
```

31.9%; Score 508; DB 2; Length 154;

Query Match

```
Dev. Biol. (1990) 138:454-463
Isolation of cDNAs encoding four mouse FGF family members and
characterization of their expression patterns during
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##status preliminary
##molecule_type mRNA
##residues 1-154 ##label HEB
##cross-references GB:M30644; NID:g193296; PIDN:AAA37621.1; PID:g309239
CLASSIFICATION #superfamily fibroblast growth factor
#superfamily fibroblast growth factor
#length 154 #molecular-weight 17153 #checksum 2906
                       ï
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hebert, J.M.; Basilico, C.; Goldfarb, M.; Haub, O.; Martin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 83 AMKEDGRLLASKCVTEECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGSKTGP 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          87 ANYKKPKILYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 146
                                                                                                                                                          83 AMKEDGRLLASKCVTEECFFFERLESNNYNTYRSRKYS--SWYVALKRIGQYKLGSKTGP 140
                                                                   82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       23 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYL 82
                                                                                                                                                                                                                                                                                                                                                                                     C37360 #type complete
basic fibroblast growth factor - mouse
#formal_name Mus musculus #common_name house mouse
17.Apr-1993 #sequence_revision 17.Apr-1993 #text_change
16.Jul-1999
                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                   23 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYL
                       ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 508; DB 2; Length 154 Pred. No. 1.63e-80; 23; Mismatches 36; Indels
                       Indels
  Pred. No. 1.63e-80;
23; Mismatches 36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    completed: Tue Aug 29 15:40:25 2000 e : 54 secs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             embryogenesis.
s MUID:90201563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 31.9%;
Best Local Similarity 54.5%;
Matches 73; Conservative
Similarity 54.5%; 73; Conservative
                                                                                                                                                                                                                                                                          141 GQKAILFLPMSAKS 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   207 GOKAILFLPLPVSS 220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         141 GOKAILFLPMSAKS 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    G.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #cross-references MUT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A37360
  Best Local
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Search co
```

		*
****	(TM)	*****
****	'	****
****	''	*****
*******		******
******		********
******		******
********		*********
*****	[	*****
在各种社会的现在分词 医克拉克氏征 医克拉克氏性 医克拉克氏性 医克拉克氏性 医克拉克氏性 医克拉克氏性 医克拉氏性 医克拉克氏征 医克拉氏征 医克拉氏征 医克拉氏氏征 医克拉氏氏征 医克拉氏征 计记录器 计记录器 计记录器 计记录器 计记录器 计算机 计记录器 计记录器 计记录器 计记录器 计记录器 计记录器 计记录器 计记录器	 	***************************************

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

protein - protein database search, using Smith-Waterman algorithm MPsrch pp

MasPar time 8.10 Seconds 646.314 Million cell updates/sec Tue Aug 29 15:40:42 2000; üo,

Tabular output not generated.

>US-09-121-017B-1 (1-221) from USU9121017B.pep

1 MAPARLFALLLFFVGGVAES......PRTHYGQKAILFLPLPVSSD 221 Description: Perfect Score: Sequence:

Scoring table:

188963 seqs, 23686106 residues Searched:

summaries Minimum Match 0% Listing first 45 Post-processing:

1:geneseg36 Database:

Mean 32.257; Variance 136.606; scale 0.236 Statistics: Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

Pred No.	- 1	4.61e-84	4.61e-84	4.61e-84	4.61e-84	4.61e-84	4.61e-84	4.61e-84	4.61e-84	4.61e-84	4.61e-84	4.61e-84	4.61e-84	4.61e-84	4.61e-84	4.61e-84	4.61e-84	4.61e-84	4.61e-84	4.61e-84	4.61e-84	4.61e-84	4.61e-84	5.80e-84
Description	יייייייייייייייייייייייייייייייייייייי	Human acidic fibroblas	Human acidic Fibroblas	Human acid fibroblast	Human recombinant aFGF	Human acidic fibroblas	Sequence of human prot	Human acidic fibroblas	Human aFGF encoded by	Human beta-endothelial	Human beta-endothellal	Human endothellal cell	Human beta-endothelial	Human acidic fibroblas	FGF-1.	Sequence encoded by co	Fibroblast growth fact		Fibroblast growth fact	Human endothelial cell	Human endothelial cell	Human bECGF encoded by	Human endothelial cell	Human alpha-endothelia
SUMMARIES		R25914 H	R34497 H	Р90068 Н	R74647 H	W04806 H		R10527 H	R05789 H	W92283 H	W04805 H		W75414 H		R70812 F						W92291 H		W06818 H	W75413 H
DB	;	-	Н	г	Н	Н	Н	П	н	-	7	П	7	7	Н	г	٦	П	1	-	7	٦	-	-
% Query Match Length		140	140	140	140	140	140	141	151	154	154	154	154	155	155	155	155	155	155	155	155	165	168	134
% Query Match		61.8	61.8	61.8	61.8	61.8	61.8	61.8		61.8	61.8	61.8	•	61.8	61.8	61.8	61.8		•	•	61.8	61.8	61.8	61.7
Score		984	984	984	984	984	984	984	984	984	984	984	984	984	984	984	984	984	984	984	984	984	984	983
gult No.		7	7	æ	4	S	9	7	ھ	6	10	11	12	13	14	15	16	17	18	19	20	21	22	. 23

24 983 61.7 134 1 W92282 twman alpha-endothelia 25 983 61.7 134 1 W04807 Human alpha-endothelia 26 973 61.1 156 1 W71383 Fibroblast growth fact 27 972 61.0 135 1 W06817 Human endothelial cell 28 960 60.3 132 1 R1327 9 N-terminal residue d 29 960 60.3 132 1 R25418 arGF mutein #2. 30 953 59.8 155 1 W00561 Human (GLy93) arGF and 33 948 59.5 140 1 R65935 Human (GLy93) arGF and 33 938 58.9 129 1 R1328 12 N-terminal residue d 36 923 57.9 140 1 R3496 Bovine acidic Fibrobla 37 923 57.9 140 1 R3496 Bovine acidic fibroblas 40 923 57.9 140 1 R25918 Human acidic fibroblas 40 921 57.9 140 1 R25915 Human acidic fibroblas 40 921 57.9 140 1 R25915 Human acidic fibroblas 41 921 57.4 154 1 R05315 Human acidic fibroblas 42 915 57.4 154 1 R05315 Human acidic fibroblas 42 915 57.3 141 1 R25569 Recombinant human muta 44 912 57.3 141 1 R25569 Recombinant human muta 45 910 56.5 136 1 W01747 Chimeric acid/basic fi	5.80e-84	5.80e-84	7.24e-83	1.13e-81	1.13e-81	5.64e-81	5.64e-81	1.78e-80	1.76e-79	1.76e-79	5.45e-78	5.45e-78	5.45e-78	5.45e-78	5.45e-78	5.45e-78	8.62e-78	3.40e-77	6.77e-77	6.77e-77	1.05e-75
983 61.7 134 1 983 61.7 134 1 973 61.7 135 1 135 1 1 950 60.3 132 1 1 953 59.8 155 1 1 923 59.8 155 1 1 923 59.8 155 1 1 923 59.5 140 1 1 923 57.9 140 1 1 923 57.9 140 1 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1 923 57.9 140 1		Fibrohlast grouth fact	Human endothelial cell	9 N-terminal residue d	aFGF mutein #2.	Recombinant human Alal	Human (Gly93) aFGF ana	Fibroblast growth fact	aFGF mutein #3.			Brain-derived acidic f	Bovine recombinant aFG	Bovine acidic fibrobla	Human acidic fibroblas	Bovine fibroblast grow	Human acidic fibroblas	Recombinant human muta	Recombinant bovine Ala	Bovine (Ala47,Gly93) a	Chimeric acid/basic fi
983 61.7 973 61.7 972 61.0 960 60.3 960 60.3 953 59.8 923 57.9 923 57.9 923 57.9 923 57.9 924 57.9 927 57.9 927 57.9 928 57.9 927 57.9 928 57.9 929 57.9	W92282	W0480/	W06817	R11327	R25418	R25570	W00561	R65935	R25419	R11328	R34496	R13030	R74648	P90069	R25915	R65934	R05315	P90074	R25569	W00560	W01747
983 61.7 973 61.7 972 61.0 960 60.3 960 60.3 953 59.8 923 57.9 923 57.9 923 57.9 923 57.9 924 57.9 927 57.9 927 57.9 928 57.9 927 57.9 928 57.9 929 57.9	н.	٦.	4 ~4		<del>, -1</del>	щ	<del>, -</del> 1	н	-	-	-	ч		-	н	-	Н	ч	н	Н	7
90 00 00 00 00 00 00 00 00 00 00 00 00 0	134	154	135	132	132	155	155	140	129	129	140	140	140	140	140	140	154	154	141	141	136
	61.7	7. [	61.0	60.3	60.3	59.8	59.8	59.5	58.9	58.9	57.9	57.9	57.9	57.9	57.9	57.9	57.8	57.4	57.3	57.3	56.5
2000000000000000000000000000000000000	983	200	972	960	960	953	953	948	938	938	923	923	923	923	923	923	921	915	912	912	900
	24	20	27	28	29	30	31	32	33	. 34	32	36	37	38	39	40	41	42	43	44	45

### ALIGNMENTS

Synergistic antiviral composition contains BFGF and sulphated by Polyaaccharide - for treating viral infections e.g. HSV-1 and -2, cytomegalovirus, HIV, influenza virus etc.

Totomegalovirus, FIV, influenza virus etc.

Disclosure; Page 4; 20pp; English.

This sequence represents acidic fibroblast growth factor (aFGF).

aFGF, or its fragments may be used in synergistic compsn. with an antivirally active sulphated polysaccharid;, and one or more excipients. The compsn. may be used to control herpes simplex virus (HSV-1 or -2) herpes varicella/zoster; cytcmegalovirus; influenza; human respiratory syneytial virus; Semliki Forest virus; HIV or Moloney Sarcoma virus. The combination of aFGF with sulphated cyplysaccharide is found to have a greater antiviral activity than sequence 140 AA; 26-JAN 1993 (first entry)
Human acidic fibroblast growth factor.
viral infections, viruses; FGF; herpes simplex virus; HSV-1;
herpes varicella, herpes zoster; cytomeçalovirus; influenza;
human respiratory syncytial virus; Semliki Forest virus; HIV;
human immunodeficiency virus; Moloney Sarcoma virus. 05-AUG-1992. 31-DAN-1992; 101541. 31-JAN-1992; GB-002145. 09-JAN-1992; GB-000410. FERM ) FARMITALIA ERBA SRL CARLO. Battistini C, Camminati P, Garofano L, Mazue G, Ungheri D; WPI; 92-260792/32. R25914 standard; peptide; 140 AA sapiens. EP-497341 Homo RESULT 

0; Gaps Length 140; Score 984; DB 1; Length 140; Pred. No. 4.619-84; 1; Mismatches 0; Indels Query Match 61.8%; Best Local Similarity 99.3%; Matches 134; Conservative

ô

6 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 65 ò g

66 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 125

g

147 AMDTDGLLYGSQTPNEEGLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 206 ò

126 GQKAILFLPLPVSSD 140

30-MAR-1993

R34497;

ò

Sequence Query Match

ပ္ပင္တ

Matches

셤

99

g

à

126

g

δ

207

ò

```
ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  66 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 125
                                                        AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDK3DQHIQLQLSAESVGEVYIKSTETGQYL 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VM 908 Standard; Protein; 140 AA.
W04806,
W048
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   New recombinant human acidic fibroblast growth factor - used to promote cell growth, to promote wound healing, for vascular grafts and blood vessel repair

Claim 2; Column 30; 25pp; English.

Oligonucleotides were synthesized on the basis of the amino acid sequence of bovinne acidic fibroblast growth factor (aFGF) and used to produce a synthetic gene (given in Q88233) incorporating codons preferred by E. coll or mammalian cells, unique cloning aftes, etc. This synthetic gene was mutagenized to obtain a gene encoding a human recombinant aFGF (R74547) having activity
                                                                                      147 AMDIDGLIYGSQIPNEECLELERLEENHYNTYISKKHAEKNWEVGLKKNGSCKRGPRIHY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 147 AMDIDGLLYGSQIPUEECLELEENLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRIHY
                                                                                                                                                                                                                                                                                                                                                                            25-SEP-1995 (first entry)
Human recombinant aFGF.
Acidic fibroblast growth factor; aFGF; vulnerary; angiogenesis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 984; DB 1; Pred. No. 4.61e-84;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Linemeyer DL,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1; Mismatches
                                                                                                                                                                                                                                                                                                                             Ä
                                                                                                                                                                                                                                                                                                                          R74647 standard; protein; 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Kelly LJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match (61.8%;
Best Local Similarity 99.3%;
Matches 134; Conservative
                                                                                                                                                               126 GOKAILFLPLPVSSD 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          126 GQKAILFLPLPVSSD 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11-JUL-1986; US-884460.

04-UNN-1987; US-054991.

04-MAY-1988; US-190293.

08-FEB-1991; US-654397.

25-SEP-1991; US-765472.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-868473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (MERI ) MERCK & CO INC
Gimenez-Gallego G, Ke
WPI; 95-138983/18.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 25-SEP-1992; US-951365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          140 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        12-SEP-1985;
30-MAY-1986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      24-DEC-1984;
24-DEC-1984;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US5401832-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28-MAR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 mitogen.
                                                                                                                                                                                                                                                                                                                                                         R74647;
                                                     99
                                                                                                                                                                                                                     207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ID DIS
                                                                                                                                                                                                                                                                                                                          a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                  g
                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                             õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    147 AMDIDGLLYGSQIPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRIHY 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               contain at
to treat burns
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                       ģ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                 30-MAY-1991; 127435.
31-MAY-1990; JP-143388.
(TAKE) TAKEDA CHEM IND LTD.
WPI; 93-139564/IT.
FGF mutein prepn. useful for therapy of burn or thrombosis -
transformation of lymphocyte-contained animal cell by vector
cong. DNA encoding FGF mutein
Disclosure; Page 3; 23pp; Japanese.
The invention covers muteins of FGF (esp. bFGF) which contain
least one glycosylation site. The muteins can be used to trea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       p. 11 P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Disclosure; page 4; 36pp; English.
Amino acid sequence of human acidic fibroblast growth factor (aFGF). The patent claims mutant forms which have increased biological activity with(out) heparin, and promote
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       musculoskeletal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 984; DB 1; Length 140
Pred. No. 4.61e-84;
1; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 984; DB %; Length 140
Pred. No. 4.61e-84;
1; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Thomas Jnr KA, Linemeyer DL;
WPI: 89-167092/23.
Whitant acidic fibroblast growth factor
- used for promoting repair of soft tissue, musculc
tissue or vascular or nerve tissue and plasminogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1-NOV-1989 (first entry)
Human acid fibroblast growth factor
Human acidic fibroblast growth factor; mutant.
                                                                                                                                                          06-AUG-1993 (first entry)
Human acidic Fibroblast Growth Factor.
aFGF; mutein; glycoslation site; glycoprotein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            T
P90068 standard; protein; 140 AA.
                                                                                      r
R34497 standard; protein; 140 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61.8%;
larity 99.3%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ch 61.8%;
il Similarity 99.3%;
134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GOKAILFLPLPVSSD 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14-OCT-1988; 202306.
22-OCT-1987; EP-244431.
(MERI) Merck and Co.
207 GOKAILFLPLPVSSD 221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           140 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    140 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          activator prodn
                                                                                                                                                                                                                                              sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
EP-319052-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  134;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cell growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              14-JUN-1989
```

P90068;

MEDGE

ô

Gaps

ö

Sequence Query Match Best Local 9

9

셤

Matches

ö

Gaps

ö

Indels

ö

Pred. No. 4.61e-84; 1; Mismatches 0

Conservative

134;

GNYKKFKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 65

```
Best Local Similarity 99.3%;
                                           ø
                Matches
                                                                                                                                                                                                                              RESULT
                                                                                               å
                                                                                                                                                         셤
                                                                                                                                                                                                                                             g
                                           g
                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                               Isolated, purified, biologically active bovine beta endothelial cell growth factor - useful to regenerate or treat damaged blood vessels bisclosure; F19 8: 28pp: English.

Disclosure; F19 8: 28pp: English.

Bovine beta endothelial cell growth factor (beta-ECGF; W035:9) having a mol.wt. of 20 kD can be purified at least 16300 fold from bovine brain using heparin. Sepharose affinity chromatography. ECGF is useful for, among other purposes, dinignostic applications and has potential in the treatment of damaged blood vessels or other Human ECGF (737503) or fragments may be obtained using oligonucleotides (737504 to 737508 to 737509) whose design is based on the sequence of bovine alpha- and beta-ECGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                 66 AMDIDGLLYGSQIPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRIHY 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          p70995;
13-JUN-1991 (first entry)
Sequence of human proteinaceous factor (PFI) with mitogenic activity.
Cell growth promoter; mitogen; vascularisation; wound healing.
Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mitogenic polypeptide isolated from human brain tissue - useful for increasing vascular effect in eg wound healing, or generating endothelial cell linings for vascular prostheses, etc. (Claim 3; Page 1; 31pp; English.

The PF of the invention was obtd. from human brain tissue. It has a ' wt. of 15,200-16,500 (pref. 15,616-16,056) and has a high 'ty for heparin. PF1 and fragments are useful for promoting the "mesoderm-derived cells on neuroectoderm-derived cells and 'ndothelial cell linings for vascular prostheses (all 'vopeptides are useful for increasing vascularisation.
                                                                                                                                                                                                                                                                                                                                                                                                                             6 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 65
                                                                                                                                                                                                                                                                                                                                                                                                       0; Gaps
                                                                                                                                                                                                                                                                                                                                                                        Score 984; DB 1; Length 140, Pred. No. 4.61e-84; 1; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                           Length 140;
                                                                   29-APR-1991; US-693079.
27-NOV-1991; US-799859.
03-NOV-1994; US-134884.
(RHON ) RHONE POULENC RORER PHARM INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       n 6
P70995 standard; protein; 140 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              06-MAR-1987; 301969.
07-MAR-1986; US-818096.
(HARD ) HARVARD COLLEGE.
Lobb RR, Harper JW, Strydom DJ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /label= Asp-OH
                                                                                                                                                                                                                                                                                                                                                                        61.8%;
llarity 99.3%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                126 GQKAILFLPLPVSSD 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           207 GOKAILFLPLPVSSD 221
                                                                                                                         Burgess W, Maciag T;
WPI; 96-412132/41.
N-PSDB; T37503.
                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
Matches 134; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     misc_difference 140
                                                                                                                                                                                                                                                                                                                                              140 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Lobb RR, Harper Jv
WPI; 87-28595/41.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EP-241136-A.
                                                                                                                                                                                                                                                                                                                                                Sequence
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Orduriss 1989; JP-166275.

R 04-JUL-1989; JP-166275.

R 03-JUL-1989; JP-166275.

R 03-JUL-1989; JP-175542.

(TARE) TAREDA CHEMICAL IND KK.

WPI: 91-040150/06.

R-PSDB; Q10399.

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                66 AMDIDGILLYGSQIPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRIHY 125
                                                                                                                                                147 AMDTDC::LYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                67 AMDIDGLLYGSQIPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRIHY 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 984; DB 1; Length 141;
Pred. No. 4.61e-84;
1; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         All-APR-1991 (first entry)
Human acidic'fibroblast growth factor gene.
aFGF; antibady; antigen; cancer; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                R10527 standard; Protein; 141 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 61.8%;
Best Local Similarity 99.3%;
Matches 134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2. .12
/label= A
56. .67
/label= B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     104. .114
/label= C
132. .141
/label= D
                                                                                                                                                                                                                                                            GOKAIL LPLPVSSD 140
                                                                                                                                                                                                                                                                                                        127 GOKAILFLPLPVSSD 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GOKAILFLPLPVSSD 221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20-DEC-1390.
03-JUL-1589; 172542.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     R10527;
15-APR-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  J02306996-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          region
                                                                                                                                                                                                                                                                126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
```

Score 984; DB 1; Length 140;

RESULT

eo Query Muzz.

ó

```
Burgess W, Drohan WN, Jaye M, Maciag T; WPI; 99-069734/06.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                154 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Seguence
                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      අ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     අ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
    음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                   Gene encoding human acidic fibroblast growth factor -
incorporates useful restriction sites at frequent intervals to
facilitate cassette mutagenesis of specified regions.

Claim 2: Fig 3a: 12pp; English.

The synthetic arGF gene incorporates useful restriction sites at
frequent intervals to facilitate the cassette mutagenesis of
selected regions. Also included are flanking sites to simplify
the incorporation of the gene into any expression system.

The arGF mol. acts in a cascade effect to control endothelial cell
activity either co-ordinately through synergistic effects or via
independent routes. The regulation of endothelial cells is essential
for the protection of arteries, veins and capillaries from the effect
of thrombogenesis. Their stimulation and control by these factors is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20-APR-1999 (first entry)

Human beta-endothelial cell growth factor (ECGF) protein sequence.

Endothelial cell growth factor; ECGF; cleavable; recombinant; repair; regenerate; blood vessel; endothelial cell; human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       71 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     147 AMDIDGLLYGSQIPNEECLFLERLEENHYNTXISKKHAEKNWFVGLKKNGSCKRGPRTHY 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    of thrombogenesis. Their stimulation and control by these factals thought to be important in the development of tumours and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                ō
                                                                                                                                                                                                                to two stop codons
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 984; DB 1; Length 151;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0; Indels
                                             22-AUG-1990 (first entry)
Human aFGF encoded by synthetic gene.
Acidic fibroblast growth factor; aFGF; thrombogenesis; atherosclerosis; tumors.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pred. No. 4.61e-84;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1; Mismatches
                                                                                                                                                              Key
misc_difference 146. 147
/note= "sites corresp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (RHON ) RHONE-POULENC RORER PHARM INC.
                                                                                                                                                                                                                                   the DNA sequence"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       W92283 standard; protein; 154 AA.
    standard; Protein; 151 AA.
                                                                                                                                                                                                                                                                                                 08-AUG-1988; 018775.
08-AUG-1988; GB-018775.
(BRB-) Brit Bio-Tech Ltd.
Davles JA, Johnson ID;
WPI; 90-109882/15.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ch 61.8%; (1 Similarity 99.3%; 134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                131 GOKAILFLPLPVSSD 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15-DEC-1998.
11-APR-1997; 840088.
04-NOV-1996; US-743261.
03-MAR-1996; US-833594.
18-DEC-1997; US-693079.
27-NOV-1991; US-693079.
27-NOV-1991; US-798859.
03-NOV-1994; US-334884.
07-JUN-1995; US-472964.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 atherosclerosis
                                                                                                                                                                                                                                                                                                                                                                                                                       N-PSDB; Q03873
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens.
                                                                                                                                                                                                                                                           GB2223496-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US5849538-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             15-DEC-1998
                                                                                                                                                                                                                                                                                 11-APR-1990
                                                                                                                                          Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESCIA
AND WAS
WAS
WAS
WAS
WAS
WAS
PR 11:
PR 22:
PR 22:
PR 22:
PR 23:
PR 23:
PR 23:
PR 24:
PR 25:
PR 25:
PR 27:
PR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         \mathbb{Z}_{n}^{\infty}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
```

```
Claim 1. Column 16: 23pp; English.

This represents the amino acid sequence of human beta-endothelial cell growth factor (ECGF). The invention is directed to DNA encoding alpha or beta-ECGF and plasmids comprising the DNA sequences. The DNA encodes a cleavable signal peptide and an ECGF, where removal of the signal peptide yields a mature form of the ECGF. The DNA is used to produce recombinant ECGF proteins, which can be used in treatments to repair or regenerate blood vessels or other structures lined with endothelial cells.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  W03999) having
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         80 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Isolated, purified, biologically active bovine bets endothelial cell growth factor useful to regenerate or treat damaged blood vessels bisclosure; Fig 8: 28pp; English.

Bovine beta-endothelial cell growth factor (beta-ECGF; W03999) having a mol.wt. of 20 kD can be purified at least 16300 fold from bovine brain using heparin-Sepharose affinity chromatography. ECGF is potential in the treatment of damaged blood vessels or other endothelial cell-lined structures.

Human ECGF (177503) or fragments may be obtained using on the sequence of bovine alpha- and beta-ECGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           29-DEC-1996 (first entry)
Human beta-endothelial cell growth factor.
Endothelial cell growth factor, ECGF; blood vessel; regeneration; heparin-Sepharose affinity chromatography; probe; oligonucleotide; FGF; fibroblast growth factor.
Humo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DNA encoding a cleavable signal peptide and an endothelial cell growth factor – useful for producing recombinant endothelial cell growth factor proteins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ;
0
                                                                                                                                                                                                                                                                                                                                                                                              Score 984; DB 1; Length 154;
Pred. No. 4.61e-84;
1; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 984; DB 1;
Pred. No. 4.61e-84;
1; Mismatches 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      03-WAR-1986; US-835594.
18-DEC-1987; US-134499.
29-APR-1991; US-1949079.
27-NOV-1994; US-799859.
03-NOV-1994; US-334884.
(RHON ) RHONE POULENC RORER PHARM INC. Burgess W, Maciag T; WPI; 96-412132/41.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    W04805 standard; Protein; 154 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 61.8%;
Best Local Similarity 99.3%;
Matches 134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity 99.3%;
Matches 134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GORAILFLPLPVSSD 221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                140 GQKAILFLPLPVSSD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            03-MAR-1986; 835594
```

ö

ö 윱 g

ò

ö

W06816;

RESULT ID WO AC WO DT 17 DE HU KW EE OS HC

```
Compositions for promoting wound healing - containing endothelial cell growth facto: polypeptides claim 1; column 15; 23pp; English.

This sequence represents the amino acid sequence of the mature human beta-endothelial cell growth factor (b-ECGF). This amino acid sequence 1s identical to the alpha-ECGF but the beta sequence contains an extra 20 N-terminal amino acids. The sequence was isolated from a human brain stem cell cDNA library using a probe designed based on fragments of the bovine ECGF (see W75416-W75418). The ECGF protein can be used in compositions for promoting wound healing. ECGF is also used to grow sequence 154 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           80 AMDTDGLLYGSQTPNEECLFLi;RLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                87 ANYKKPKLLYCSNGGHFIRILPDGTVDGTRDRSDQHIQLQLSAESVGEVXIKSTETGQYL 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20 GNYKKPKLLYCSNGGHFLRII.PDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               06-JUL-1988; 306158.
07-JUL-1987; US-070797.
(BIOT-) BIOLECHN Res ASSOC.
Fiddes JC, Abraham JA, Protter A;
WPI; 89-009785/02.
N-PSDB; N93088.
Recombinant DNA encoding new fibroblast growth factor analogues - useful eg for accelerating wound healing a to control neovascularisation.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 984; DB 1; I
Pred. No. 4.61e-84;
1; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 984; DB 1; I
Pred. No. 4.61e-84;
1; Mismatches 0;
                    04-NOV-1996; US-7:3261.
03-MAR-1996; US-835594.
18-DEC-1987; US-134499.
29-APR-1991; US-633079.
27-NOV-1991; US-5:34884.
07-JUN-1995; US-:72964.
07-JUN-1995; US-:72964.
WHOND PRHONE-POÜLENC RORER PHARM INC.
BUTGESS W. D.COIDAL WN, Jaye M, Maclag T; WPI; 98-594032/50.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     p94037;
25-7UN-1990 (first entry)
Human acidic fibroblast growth factor.
Acidic fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 T 13
P94037 standard; protein; 155 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 61.8%;
Best Local Similarity 99.3%;
Matches 134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       / Match
Local Similarity 99.3%;
nes 134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                140 GQKAILFLPLPVSSD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       p; English.
      74326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               See also P94038.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo saplens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EP-298723-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Disclosure;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
87 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLG;SAESÝGEVYIKSTETGQYL 146
                                                            AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKRHAEKNWFVGLKKNGSCKRGPRTHY 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           damaged blood vessels, etc.
(Claim 1; Column 16; 22pp; English,
Human recombinant endothelial cell growth factors (EGGF) beta
(W06816) and alpha (W06817) differ only at their N-terminal ends.
They can be produced in transformed prokaryotic or eukaryotic host
cells using DNA sequences (T45983 and T45984, respectively) derived
from the complete human EGGF cDNA (T45985). Large quantities of
the EGGFs are produced by culturing the host cells and recovering
the proteins. EGGFs have utility in the growth and amplification
of endothelial cells in culture. They can potentially be used to
treat damaged blood vessels and other endothelial cell-lined
Sequence 154 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                     80 AMDIDGLLYGSQIPNEECLFLERLEENHYNTYISKKHAER; WFVGLKKNGSCKRGPRIHY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            - for treating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            W75414;
02-MMR-1999 (first entry)
Human beta-endothelial cell growth factor.
Human: endothelial cell growth factor; ECGF; brain stem; probe; hybridisation; bovine; wound healing; prosthetic device.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 984; DB 1; Length 154 Pred. No. 4.61e-84; 1; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Recombinant human endothelial cell growth factors
                                                                                                                                                                                                                                                                              17-MAR-1997 (first entry)
Human endothelial cell growth factor-beta.
Endothelial cell growth factor-beta; ECGF-beta.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Drohan WN, Jaye M, Maciag T;
                                                                                                                                                                                                                                                                                                                                                                                                03 MAR-1986; 835594.
03-MAR-1986; US-835594.
18-DEC-1987; US-134499.
29-APR-1991; US-134499.
27-NOV-1991; US-759859.
03-NOV-1994; US-759864.
07-JUN-1995; US-472964.
(RRON ) RHOME POULENC RORER PHARM INC. Burgess W, Drohan WN, Jaye M, Maciag MPI; 96-505421/50.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          W75414 standard; protein; 154 AA.
                                                                                                                                                                                                                     T 11
W06816 standard; Protein; 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Match 61.8%;
Local Similarity 99.3%;
les 134; Conservative
                                                                                                                                           140 GOKAILFLPLPVSSD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     140 GQKAILFLPLPVSSD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 96-505421/
N-PSDB; T45983.
                                                                                                                                                                                                                                                                                                                                            Homo sapiens.
US5571790-A.
                                                                                                                                                                                                                                                                                                                                                                                   05-NOV-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
```

4atches

80

ò 8 ò g ò

207

ö

0; Gaps

0; Indels

Length 154;

ö

0; Gaps

Length 155; 0; Indels

and

81 AMDIDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 140

셤

Homo sapiens. US5827826-A. 27-OCT-1998.

```
Search completed: Tue Aug 29 15:41:00 2000 Job time: 18 secs.
                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           207
                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           147 AMDTDGLLYGSQTPNEECLFILERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               81 AMDIDGLLYGSQIPNEECLFLERLEENHYNIYISKKHAEKNWFVGLKKNGSCKRGPRIHY 140
                                                                                                                                             FGF-1; fibroblast growth factor; cytotoxic conjugate; fusion protein; saporin; cytostatic; tumor; diabetes; rheumatoid arthritis. Homo sapiens.
147 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 206
                                                                                                                                                                                                                                                                                                                                                                                                                                         Disclosure; Page 108-109; 128pp; English.

Novel fusion proteins comprise FGF linked to saporin. FGF-1 to -9 may be used, pref. FGF-1 (R70812), FGF-5 (R70813), FGF-7 (R70814) or FGF-8 (R70815) muteins, in which at least 1 Cys residue is replaced by conservative Ser substitutions. The fusion proteins are potent sytooidal agents to cells bearing the FGF receptor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                            New monogenous preparations of cytotoxic conjugates and DNA -
contain fibroblast growth factors and cytotoxic agents for
treating FGF conditions such as tumours, diabetes and rheumatoid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           P70482;
13-MAY-1991 (first entry)
Sequence encoded by complete cDNA sequence of human endothelial
cell growth factor (ECGF).
Endothelial cell regeneration; blood vessel regeneration.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 984; DB 1; Length 155;
Pred. No. 4.61e-84;
1; Mismatches 0; Indels
                                                                                                                                                                                                                                                         /note= "Cys may be replaced by Ser"
                                                                                                                                                                                                                                                                                                                                                      ENDOCRINOLOGY
                                                                                                                                                                                                                               'note= "Cys may be replaced by
                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                      (PRIZ-) PRIZM PHARM INC.
(WHIT-) WHITTIER INST DIABETES & E
Baird AJ, Lappi DA, Sosnowski BA;
WPI; 95-082038/11.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /label= Acidic FGF
22. .155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           22. .155
/label= Alpha ECGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2. .15
/label= Beta ECGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     T 15
P70482 standard; Protein; 155 AA.
                                                                                            .T 14
R70812 standard; protein; 155 AA.
R70812;
01-SEP-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 61.8%;
Best Local Similarity 99.3%;
Matches 134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  207 GQKAILFLPLPVSSD 221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    141 GOKAILFLPLPVSSD 155
                          141 GQKAILFLPLPVSSD 155
                                                     207 GOKAILFLPLPVSSD 221
                                                                                                                                                                                                                                                                                                            02-AUG-1993; US-099924.
29-OCT-1993; US-145829.
                                                                                                                                                                                                                                                                                                   27-JUL-1994; U08511.
                                                                                                                                                                                                                                             misc_difference 132
                                                                                                                                                                                                                   misc_difference 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                                     09-FEB-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                     arthritis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT

ID P7

AAC P7

DJ 13

DE Se

DE Ce

DE Ce

CE

FH KE

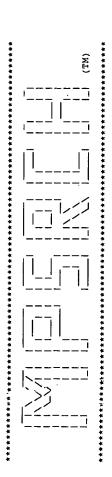
FH KE

FT PF

FT PF

FT PF
                                                                                             RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
  ò
                           g
                                                      ò
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     81 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  To screen the human brain stem cDNA library for clones contg. ECGF inserts, a specific obligonucleotide was designed. This colliponucleotide was designed. This colliponucleotide was based upon a partial AA sequence analysis of the amino terminus of ECGF (see P704408 and P70481). Fig 3s ests forth for comparison the AA sequence of cyanogen bromide-cleaved bovine alpha and beta ECGF (P70834). The two clones that were isolated, ECGF clones 1 and 29, were analysed in further detail. The nucleotide sequence of these clones and the AA sequence deduced from the nucleic acid sequence is shown in Fig 8 (see N70788 and P70482).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                           produced by recombinant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 984; DB 1; Length 155
Pred. No. 4.61e-84;
1; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                           Human endothelial cell growth factor - pi
DNA techniques, useful for wound healing
Example; Fig 8; 43pp; English.
                                                                                                                                                                 (RORE-) RORER.
BIOTECH INC.
Jaye M., Burgess W, Maciag T, Drohan W; WPI: 87-264128/37.
N-PSDB; N70788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Match 61.8%;
Local Similarity 99.3%;
les 134; Conservative
                                              03-MAR-1986; US-835594.
26-MAR-1987; ES-000812.
(MELO-) MELOY LAB INC.
(RORE ) RORER BIOTECHN INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       141 GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GOKAILFLPLPVSSD 221
11-SEP-1987.
02-MAR-1987.; U00425
```



Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

MPsrch\_Pp protein - protein database search, using Smith-Waterman algorithm

Tie Aug 29 15:37:43 2000; MasPar time 8.45 Seconds 810.692 Million cell updates/sec Tabular output not generated. in on:

>US-09-121-017B-1 (7\221) Trom USU9121017B.pep 15:3 1 HAPARLFALLEFVGGVAES.....PRTHYGQKAILFLPLPVSSD 221 Title: Description: Perfect Score: Sequence:

Scoring table:

95151 seqs, 30989116 residues Searched:

Post-processing: Fining Match 0% Listing first 45 summaries

Database:

4.158 punt 38

1)3an 46.124; Variance 75.611; scale 0.610 Statistics:

Pred. No. i the number of results predicted by chance to have a score greate. than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

		æ			COLUMNICO		
sult No.	Score	Query Match	Query Matem Length	DB	QI	Description	Pred. No.
,	984	61.9	155	: :	FGF1_HUMAN	HEPARIN-BINDING GROWTH	2.66e-20
7	972	61.0	155	Н	FGF1 NOUSE		2.88e-20
m	967	60.7	155	-	FGF1_MESAU	_	5.29e-20
ಶ	953	59.8	152	-	FGF1_PIG	_	1.82e-20
S	923	57.9	155	П	FGF1_BOVIN	_	6.80e-19
ø	922	57.9	155	П	FGF1_CHICK	HEPARIN-BINDING GROWTH	1.21e-19
7	608	38.2	198	7	SDC4_HUMAN	SYNDECAN-4 PRECURSOR (	2.38e-11
æ	522	32.8	158	-	FGF2_CHICK	HEPARIN-BINDING GROWTH	2.34e-94
σ	516	32.4	155	٦	FGF2_SHEEP	HEPARIN-BINDING GROWTH	6.64e-93
10	516	32.4	155	-	FGF2_BOVIN	HEPARIN-BINDING GROWTH	6.64e-93
11	509	32.0	155	-4	FGF2_HUMAN	HEPARIN-BINDING GROWTH	3.28e-91
12	508	31.9	154	-	FGF2_RAT	HEPARIN-BINDING GROWTH	5.73e-91
13	208	31.9	154		FGF2_MOUSE	HEPARIN-BINDING GROWTH	5.73e-91
14	498	31.3	156	-	FGF2_MONDO	HEPARIN-BINDING GROWTH	1.49e-88
15	489	30.7	155	-	FGF2_XENLA	HEPARIN-BINDING GROWTH	2.21e-86
16	466	29.3	137	-	FGF2_RABIT	HEPARIN-BINDING GROWTH	7.44e-81
17	394	24.7	202	Н	SDC4_RAT	SYNDECAN-4 PRECURSOR (	9.49e-64
18	364	22.8	601.	~	FGF9_XENLA	GLIA-ACTIVATING FACTOR	9.91e-57
19	360	22.6	7,08	7	FGF9_MOUSE	GLIA-ACTIVATING FACTOR	8.44e-56
20	360	22.6	208	Н	FGF9_HUMAN	GLIA-ACTIVATING FACTOR	8.44e-56
21	360	22.6	208	ч	FGF9_RAT	GLIA-ACTIVATING FACTOR	8.44e-56
22	359	22.5	198	-	SDC4_MOUSE	SYNDECAN-4 PRECURSOR (	1.44e-55
23	329	20.7	207	1	FGFG_HUMAN	FIBROBLAST GROWTH FACT	ij

1.69e-47	1.02e-42	4.85e-42	3.87e-41	2.44e-39	6.84e-39	1.50e-37	1.95e-36	1.17e-36	3.25e-36	3.25e-36	3.25e-36	9.05e-36	5.43e-36	5.43e-36	4.18e-35	1.16e-34	1.93e-34	8.85e-34	1.85e-32	3.06e-32	5.07e-32
FIBROBLAST GROWTH FACT	KERATINOCYTE GROWTH FA	KERATINOCYTE GROWTH FA	KERATINOCYTE GROWTH FA	FIBROBLAST GROWTH FACT	KERATINOCYTE GROWTH FA	FIBROBLAST GROWTH FACT															
FGFG_RAT	FGF7_SHEEP	FGF7_HUMAN	FGF7_MOUSE	FGFA_XENLA	FGFA_RAT	FGFA_HUMAN	FGFB_XENLA	FGF4_CHICK	FGFE_MOUSE	FGF5_MOUSE	FGF5_RAT	FGF7_RAT	FGFA_MOUSE	FGFE_HUMAN	FGF5_HUMAN	FGF3_BRARE	FGF4_BOVIN	FGFB_HUMAN	FGFB_MOUSE	FGFC_HUMAN	FGF4_HUMAN
П	_	-	Н	Н	П	н	н	Н	<b>~</b>	-	-	_	_	-	-	_	н	-	-	-	Н
207	194	194	194	187	215	208	192	194	247	264	266	194	509	247	268	256	206	225	. 225	243	206
20.3	19.0	18.8	18.6	18.1	18.0	17.6	17.3	17.3	17.2	17.2	17.2	17.1	17.1	17.1	16.9	16.8	16.7	16.5	16.1	16.1	16.0
324	303	300	296	288	286	280	275	276	274	274	274	272	273	273	569	267	266	263	257	256	255
24	25	26	27	28	59	30	31	32	33	34	35	36	37	38	36	40	41	42	43	44	45

## ALIGNMENTS

```
SEQUENCE OF 16-49.
MEDLINE: 862/5260.
Gautschi P., Frater-Schroeder M., Boehlen P.;
"Partial molecular characterization of endothelial cell mitogens from human brain; acidic and basic fibroblast growth factors.";
FEBS Lett. ;04:203-207(1986).
           Wang W.P., Quick D., Balcerzak S.P., Needleman S.W., Chiu I.M.; "Cloning and sequence analysis of the human acidic fibroblast growth factor gene and its preservation in leukemia patients."; Oncogene 6:1521-1529(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Harper J.W., Strydom D.J., Lobb R.R.;
"Human class I heparin-binding growth factor: structure and homology
to bovine acidic brain fibroblast growth factor.";
Biochemistry 25:4097-4103(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE; 9/194129.
Blaber M., Disalvo J., Thomas K.A.;
"X-ray crystal structure of human acidic fibroblast growth factor.";
Blochemistry 35:2086-2094(1996).
                                                                                                                                                                                                                                           SEQUENCE OF 1-154 FROM N.A.
MEDLINE; 94069734.
Zhao X.M., Yeoh T.K., Hiebert M., Frist W.H., Miller G.G.;
"The expression of acidic fibroblast growth factor (heparin-binding growth factor-1) and cytokine genes in human cardiac allografts and
                                                                                                                                                                          "An acidic fibroblast growth factor protein generated by alternate
                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE; 90365758.

Crumley G., Dionne C.A., Jaye M.;

The gene for human acidic fibroblast growth factor encodes two upstream exons alternatively spliced to the first coding exon.";

Biochem. Biophys. Res. Commun. 171:7-13(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      growth factor.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              factors:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRÚCTURE BY NMR OF 24-155.
MEDLINE: 94358885.
Pineda-Licena A., Jimenez M.A., Nieto J.L., Santoro J., Rico M.,
Gimenez-ŝallego G.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.;
"The complete amino acid sequence of human brain-derived acidic
fibroblast growth factor.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gimenez-Gailego G., Conn G., Hatcher V.B., Thomas K.A.;
"Human bzaln-derived actidic and basic fibroblast growth factor
amino terninal sequences and specific mitogenic activities.";
Biochem. Biophys. Res. Commun. 135:541-548(1986).
                                                                                                     SEQUENCE FROM N.A.
MEDLINE; 92202857.
Li Y.L., Kha H., Golden J.A., Migchielsen A.A.J., Goetzl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE; 87048871.
Gautschi-Sova P., Mueller T., Boehlen P.;
"Amino acid sequence of human acidic fibroblast g
Biochem. Biophys. Res. Commun. 140:874-880(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Biochem. Biophys. Res. Commun. 138:611-617(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CRYSTALLOGRAPHY (2.0 ANGSTROMS).
                                                                                                                                                                                            splicing acts like an antagonist.";
J. Exp. Med. 175:1073-1080(1992).
                                                                                                                                                                                                                                                                                                                                                      Fransplantation 56:1177-1182(1993).
                                                                                                                                                                                                                                                                                                                                                                        [8]
SEQUENCE OF 1-40 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 [9]
SEQUENCE OF 16-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE OF 16-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE OF 16-155.
MEDLINE; 86295741.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  86296647.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE OF 16-47
MEDLINE; 86186784
                                                                                                                                                         Turck E.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              X-RAY
                                                                                                                                                                                                                                                                                                                                     cells
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           action of suramins and suradistas.";
J. Mol. Biol. 281:899-915(1998).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PFAM; PF00167; FGF; 1.
PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFEGF.
PROSITE; PR0047; HBGFEGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding; Acetylation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -1- MISCELLANDOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY THAN DOES BFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
"IH-NMR assignment and solution structure of human acidic fibroblast growth factor activated by inositol hexasulfate."; J. Mol. Biol. 242:81-98(1994).
                                                                                                                                                                                                                                                                                                                                                                                                     3,3,
                                                                                                                                                                       Pineda-Lucena A., Jimenez M.A., Lozano R.M., Nieto J.L., Santoro J.,
                                                                                                                                                                                                                              ŗ
                                                                                                                                                                                                                                                                                                                                                                                       Lozano R.M., Jimenez M., Santoro J., Rico M., Gimenez-Gallego G. "Solution structure of acidic fibroblast growth factor bound to 6-naphthalenetrisulfonate: a minimal model for the anti-tumoral
                                                                                                                                                                                           Rico M., Gimenez-Gallego G.;
"Three-dimensional structure of acidic fibroblast growth fac solution: effects of binding to a heparin functional analog. J. Mol. Biol. 264:162-178(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HEPARIN-BINDING GROWTH FACTOR ACETYLATION.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
F586E8BFB09F1580 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; M13361; AAA79245.1; -.
EMBL; X51943; CAA536206.1; -.
EMBL; M30492; AAA52446.1; -.
EMBL; M30499; AAA52446.1; JOINED.
EMBL; M30491; AAA52446.1; JOINED.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                M.
                                                                                                                                                                                                                                                                                                                                         NMR OF 25-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             15
155
28
28
116
17460 M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAA51672.1;
AAA51673.1;
AAA52638.1;
                                                                                                                   OF 24-155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAB29057.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PDB; 2AFG; 15-OCT-95.
PDB; 1AXM; 22-APR-98.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2AXM; 22-APR-98.
1RML; 11-NOV-98.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SUBUNIT: MONOMER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PIR; A24820; A24820
PIR; A26386; A26386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PIR; A33665; A33665
PIR; S18217; S18217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2
24
113
155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PIR; A24662; A24662
                                                                                                                                                                                                                                                                                                                                                                   MEDLINE; 98387896.
                                                                                                                   NMR
                                                                                                                   STRUCTURE BY
                                                                                                                                                                                                                                                                                                                                         STRUCTURE BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MIM; 131220;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 D-structure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MOD_RES
BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL;
        RANGE SEED OF A SECOND DESCRIPTION OF A SECOND DESCRIP
```

```
entities requires a license agreement (or send an email to license@isb-sib.ch)
                                      EMBL; X14232; CAA32448.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                              137 RTHYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                            203 RTHYGQKAILFLPLPVSSD 221
                                                                                                                                                                                                                                                                                                61.0%;
95.0%;
                                                                                                                                                                                                                                                                                                                        132; Conservative
                                                                                                                                                                                                                                 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GROWTH FACTOR) (AFGF). FGF1 OR FGF-1.
                                                                                                                                                                                                                                                                                                            Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mesocricetus
                                                                                                                                                                                                                                              BINDING
BINDING
SEQUENCE
                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                     CHAIN
                                                                                                                                                                                                                                                                                                                        Matches
  ŏ
                                                                                                                                                                                                                                                                                                                                                                                              ద
                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions along as its content is in no way modified and this statement is not removed. Usage by and for commercial
                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGENTS
                                                                                             MEDLINE; 90201563.
Hebert J.M., Basillco C., Goldfarb M., Haub O., Martin G.R.;
"Isolation of cDNAs encoding four mouse FGF family members and
chracterization of their expression patterns during embryogenesis.";
Dev. Biol. 138:454-463(1990).
                                                            01-JUL-1989 (Rel. 11, Created)
01-JUL-1989 (Rel. 11, Last sequence update)
15-JUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -i- SUBUNIT: MONOMER.
-i- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                              GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 80
                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "Characterization of the 1B promoter of fibroblast growth factor 1 and its expression in the adult and developing mouse brain.";
J. 13020. Chem. 271.30263-30271,(1996).
-i- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGE IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN UTRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                    Mus musculus (Mouse), and Rattus norvegicus (Rat).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                      ч
                                                                                                                                                                                                                                                                                                                                                                                                      Goodrich S., Yan G.C., Bahrenburg K., Mansson P.E.;
"The nucleotide sequence of rat heparin binding growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alam K.Y., Frostholm A., Hackshaw K.V., Evans J.E., Rotter A.,
                         ö
  Length 155;
                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Madiai F., Hackshaw K.V., Chiu I.M.; "Cloning and characterization of the mouse Fgf-1 gene."; Gene 179:231-236(1996).
Score 984; DB 1; L. Pred. No. 2.66e-209; 1; Mismatches 0;
                                                                                                                                                                                                                      155 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                           Nucleic Acids Res. 17:2867-2867(1989)
                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
SPECIES-MOUSE; STRAIN-BALB/C;
MEDLINE; 97094746.
61.8%;
larity 99.3%;
Conservative
                                                                                                                                              GOKAILFLPLPVSSD 155
                                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                                                          FGF1 OR FGF-1 OR FGFA.
                                                                                                                                                                                                                                                                                             GROWTH FACTOR) (AFGF)
           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                           [1]
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE; 89240051.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SPECIES=MOUSE;
MEDLINE; 97128312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SPECIES-MOUSE
                      134;
                                                                                                                                                                                                         LT 2
FGF1_MOUSE
P10935;
                                                                                                                                                                                                                                                                                                                                                                                   SPECIES-RAT
 Query Match
               Local
                                                                                                                                                                      207
                      Matches
                                                21
                                                                                                                                              141
                                                                                                                                                                                                            RESULT
                                                                                             g
                                                                                                                                            셤
                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                      ö
```

```
(See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ï
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               and its modulation by steroids.";
J. Cell. Biochen. 43:17-26(1990).
-!- FUNCTION: THE HEPRENEIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS.
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
MEDLINE; 90270291.
Hall J.A., Harris M.A., Malark M., Mansson P.E., Zhou H., Harris S.E.; "Characterization of the hamster DDT-1 cell aFGF/HGBF-I gene and CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FGF1_MESAU STANDARD; PRT; 155 AA.
P340014 Rel. 28, Created)
01-FEB-1994 (Rel. 28, Last sequence update)
15-JUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     143 GQYLAMDIDGLLYGSQIPNEECLFLERLEENHYNTYISKKHARKNWFVGLKKNGSCKRGP 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    77 GQYLAMDIEGLLYGSQTPNEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGP 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -1- SUBUNIT: MONOMER.
-1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
THAN DOES BFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY. PIR; A60721; A60721. HSSP: P05239; 2AXM. HSSP: P05239; 2AXM. PFRM: PFRM: PFRM: PRO0167; FGF: 1. PRINTS; PR00262; ILLHBGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           18 LPL-GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HEPARIN-BINDING GROWTH FACTOR 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 155;
                                                                                                                                                                                                                                                                                                                                                                                    PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFFGF.
Growth factor; Mitogen; Vascularization; Heparin-binding.
PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
8880E4FF0FBA4161 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 972; DB 1; Le
Pred. No. 2.88e-206;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mesocricetus auratus (Golden hamster).
                                                                                                     EMBL; M30641; AAA37618.1; -...
EMBL; U3645; AAC52969.1; -...
EMBL; U3645; AAC52969.1; JOINED.
EMBL; U36458; AAC52969.1; JOINED.
EMBL; U67610; AAC52907.1; -...
PIRS; D37360; D37360.
HSSP; P05230; ZAXX.
MCD; M1195515; FGF; I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16 155 HEF
24 28 HEF
113 116 HEF
155 AA; 17418 MW; 8
```

ö

DR WX TTT SS

ò 8 ò

```
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE OF 2-155
MEDLINE; 87026586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE; 89078619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE; 89083506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LT 5
FGF1_BOVIN
                                                                                                                                                                                                                            CONFLICT
CONFLICT
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                  BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  P03968;
                                                                                                                  PROPEP
                                                                                                                                                                CHAIN
                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SFFFFFFFFFFF
                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bloinformatics institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    canine hearts.";
Eur. J. Blochem. 181:67-73(1989).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIGGENIC AGENTS
-!- FUNCTION: THE HEPARIN-BINDING FOR A VARIETY OF CELL TYPES IN VITVO. AND ARE POTENT MITGGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-FEB-1991 (Rel. 17, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
15-UDL-1999 (Rel. 38, Last sequence update)
15-UDL-1999 (Rel. 38, Last sequence update)
16-UDL-1999 (Rel. 38, Last sequence update)
16-UDL-1999 (Rel. 38, Last sequence update)
16-UDL-1999 (Rel. 38, Last sequence update)
17, Last sequence update)
18, Last sequence update)
19, Last sequence update update)
19, Last sequence update update)
19, Last sequence update 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Quinkler W., Massberg M., Bernotat-Danielowski S., Luethe N., Sharma H.S., Schaper W.; "Isolation of heparin-binding growth factors from bovine, porcine and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY THAN DOES BFGF.
                                                                                                                                                                                                                                                                                                                          81 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                            -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                                                                                                                                                 21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQYL 80
                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     rgfl OR FGF-1.
Sus scrofa (P1g).
Bukaryota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TISSUE-HEART;
MEDLINE; 92062117.
Schott R.J., Schaper W.;
Schalidt M., Sharma H.S., Schott R.J., Schaper W.;
"Amplification and sequencing of mRNA encoding acidic fibroblast growth factor (aFGF) from porcine heart.";
Blochem. Blophys. Res. Commun. 180:853-859(1991).
                                                                                                                                                                                                                                                     ö
                                                                                              ä
PRINTS; PR00263; HBGFFGF. 1.
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
BY SIMILARITY.
CHAIN 16 155 HEPARIN-BINDING GROWTH FACTOR
BINDING 24 28 HEPARIN (POTENTIAL).
BINDING 113 116 HEPARIN (POTENTIAL).
BINDING 113 116 HEPARIN (POTENTIAL).
                                                                                                                                                                                                         Length 155;
                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                         Score 967; DB 1; L. Pred. No. 5.29e-205;
                                                                                                                                                                                                                       Pred. No. ...
2: Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             152 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; X60317; CAA42869.1; -.
                                                                                                                                                                                                       60.7%;
larity 97.0%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SUBUNIT: MONOMER
                                                                                                                                                                                                                              Local Similarity
es 131; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE OF 22-41.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE; 89231704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (FRAGMENT)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JT 4
FGF1_PIG
P20002;
                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                   Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    207
```

```
Halley C., Courtois Y., Laurent M.; "Nucleotide sequence of bovine acidic fibroblast growth factor cDNA."; Nucleic Acids Res. 16:10913-10913(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 81 AMDTSGLLYGSQTPSEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE OF 2-155.
MEDILE: 87016918.
MEDITE: 87016918.
Structural evidence that endothelial cell growth factor beta is the precursor of both endothelial cell growth factor beta is the precursor of both endothelial cell growth factor alpha and acidic fibroblast growth factor. 83:7216-7220(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 23-0CT-1986 (Rel. 02, Created)
01-MAR-1999 (Rel. 10, Last sequence update)
15-JUL-1999 (Rel. 38, Last annotation update)
15-JUL-1999 (Rel. 38, Last annotation update)
GROWTH BEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST GROWTH FACTOR), (AFGF) (PROSTATROPIN) (ENDOTHELIAL CELL GROWTH FACTOR BETA AND ALPHA CHAINS) (ACIDIC EXE-DERIVED GROWTH FACTOR II) (EDGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Alterio J., Halley C., Brou C., Soussi T., Courtois Y., Laurent M., "Characterization of a bovine acidic FGF cDNA clone and its expression in brain and retina."; FEBS Lett. 242:41-46(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bos taurus (Bovine).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoldea;
                                                                                                                                       HEPARIN-BINDING GROWTH FACTOR 1.
ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL
                                                                                                                                                                                                                                                                                                                                                                                         Length 152;
HSSP; P05230; ZAXM.
PFAM; PF00167; FGF; 1.
PROSITE: PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                2; Indels
                                                                                                                                                                                                                                                  31 C -> S (IN REF. 2).
39 R -> Y (IN REF. 2).
152
17103 MW; AEB53B0A92F9ABF4 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                      Pred. No. 1.82e-201;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                   2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OR FGF-1 OR FGFA OR HBGF-1 OR AFGF.
                                                                                                                                                                                                                                                                                                                                                                                            Score 953;
                                                                                                                                                                                                                                                                                                                                                                                         Match 59.8%;
Local Similarity 97.0%;
les 128; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                                                                                    >152
>152
>152
28
116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bovidae; Bovinae; Bos.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               141 GOKAILFLPLPV 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               31
39
152
152 AA;
```

S

```
PRINTS; PRO0262; ILIHBGF.
PRINTS; PRO0263; HBGFGF.
PROSITE; PRO0247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding; Acetylation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GQFLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKHWFVGLKKNGRSKLGP 136
                                                                                                                                                                                                                                                 ENDOTHELIAL CELL GROWTH FACTOR BETA. HEPARIN-BINDING GROWTH FACTOR 1. ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       143 GQYLAMDIDGLLYGSQTPNEECLFLERLEENHYNTYISKKHARKNWFVGLKKNGSCKRGP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          17493 MW; F636641F189F9BFD CRC64;
                                                                                                                                                                                                                                                                                               ACETYLATION.
HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 923; DB 1; L. Pred. No. 6.80e-194; 7; Mismatches 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ž
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (Rel. 17, Created)
(Rel. 33, Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RTHFGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         57.9%;
ilarity 90.6%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                                                                                                                                                                                                                              PIR, A24477; A24477.
PIR, B24663; B24663.
PIR, SO2102; S02102.
PDB; IBAR; 31-OCT-93.
PDB; IAC; 31-OCT-93.
PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
Matches 126; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       155 AA;
                    B25043; E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FGF1_CHICK
P19596;
01-FEB-1991 (
01-FEB-1996 (
                                                                                                                                                                                                                    3D-structure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                               MOD_RES
BINDING
BINDING
STRAND
TURN
                                                                                                                                                                                                                             PROPEP
CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                              STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRAND
STRAND
TURN
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                             HELIX
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HELIX
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAND
                                                                                                                                                                                                                                                                                                                                                                                                              STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              rurn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           rurn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DAPP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Quinkler W., Maasberg M., Bernotat-Danielowski S., Luethe N.,
Sharma H.S., Schaper W.;
"Isolation of heparin-binding growth factors from bovine, porcine and
canine hearts.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -!- SUBUNIT: MONOMER.
-!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
THAN DOES BFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                             Gimenez-Gallego G., Rodkey J., Bennett C., Rios-Candelore M.,
Disalvo J., Thomas K.;
"Brain-derived acidic fibroblast growth factor: complete amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE; 91095983.
Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
Hsu B.T., Rees D.C.;
"Three-dimensional structures of acidic and basic fibroblast growth
Crabb J.W., Armes L.G., Carr S.A., Johnson C.M., Roberts G.D., Bordoli R.S., McKeehan W.L.;
Complete primary structure of prostatropin, a prostate epithelial cell growth factor.";
Biochemistry 25:4988-4993(1986).
                                                                                                                                                                                                                                                                                                                                       SEQUENCE OF 16-56 FROM N.A.
MEDLINE; 86261806.
Abraham J.A., Mergia A., Whang J.L., Tumolo A., Friedman J.,
Hjerrild K.A., Gospodarowicz D., Fiddes J.C.;
"Nucleotide sequence of a bovine clone encoding the anglogenic protein, basic fibroblast growth factor.";
Science 233:545-548(1986).
                                                                                                                                                                                                                                                           Boehlen P., Esch F., Baird A., Gospodarowicz D.;
"Actide fibroblast growth factor (FGF) from bovine brain:
amino-terminal sequence and comparison with basic FGF.";
EMBO J. 4:1951-1956(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE OF 1-18 FROM N.A. Philippe J.M., Renaud F., Desset S., Laurent M.; Submitted (JUL-1992) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        K-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS)
                                                                                                                                                                                                                           SEQUENCE OF 16-44, AND COMPOSITION. MEDLINE; 86055750.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eur. J. Biochem. 181:67-73(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; M13439; AAA30516.1; -.
                                                                                                                                                                               sequence and homologies.";
Science 230:1385-1388(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ылы; М35608; ААА30517.1;
EMBL; X66446; САА47063.1;
EMBL; M97660; AAA30563.1;
EMBL; M97661; AAA30563.1;
PIR; A01385; GKBOA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      factors.";
Science 251:90-93(1991)
                                                                                                               86070224.
                                                                                                SEQUENCE OF 16-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 16-45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          89231704
```

```
RESULT
                  õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                         Riseau W., Cautschi.-Sova P., Boehlen P.;
Riseau W., Cautschi.-Sova P., Boehlen P.;
"Endothelial cell growth factors in embryonic and adult chick brain are related to human acidic fibroblast growth factor.";
EMBO J. 7:959-962(1988).
-1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -!- SUBUNIT: MONOMER.
-!- MISCELLANDOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
THAN DOES BFGF.
-!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            77 GQYLAMDTNGLLYGSQLPGEECLFLERLEENHYNTYISKKHADKNWFVGLKKNGNSKLGP 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 143 GQYLAMDTDGLLYGSQTPNEECLFLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGP 202
15-JUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST GROWTH FACTOR) (ALPHA-ENDOTHELIAL CELL GROWTH FACTOR).
                                                                 Gallus gallus (Chicken).
Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi;
Archosauria, Aves, Neognathae, Galliformes, Phasianidae, Phasianinae,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       18 LPL-GNYKKPKLLYCSNGGHFLRILPDGKVDGTRDRSDQHIQLQLSAEDVGEVYIKSTAS 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
HEPARIN (POTENTIAL).
                                                                                                                                                           SEQUENCE FROM N.A.
MEDLINE; 91347925.
Schultch H., Risau W.;
Schildrentiating and mature neurons express the acidic fibroblast growth factor gene during chick neural development.";
Development 111:1143-1154(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 922; DB 1; Length 155;...
Pred. No. 1.21e-193;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HEPARIN-BINDING GROWTH FACTOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFPGF.
PROSITE; PS00247; HBGFFGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7; Indels
                                                                                                                                                                                                                                                                                                                         to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PARIN (POTENTIAL).
8EDB70545E2B4365 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; S63263; AAB19629.1; -.
EMBL; U31863; AAA80310.1; -.
EMBL; S63261; AAD13942.1; -.
PIR; S02639; S02639.
HSSP; P05230; ZAXM.
PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17322 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RTHYGQKAILFLPLPVSAD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  57.9%;
89.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           155
155
28
                                                                                                                                                                                                                                                                                                       Martin G.R., Han J.K.;
Submitted (JUL-1995) to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                           SEQUENCE OF 22-48 MEDLINE; 88296438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    124;
                                                      FGF1 OR FGF-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BINDING
                                                                                                                               Gallus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    137
   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
```

```
203 RTHYGQKAILFLPLPVSSD 221
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its mee by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Takagi A., Kojima T., Tsuzuki S., Katsumi A., Yamazaki T., Sugiura I.,
Hamaguchi M., Saito H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Kojima T., Inazawa J., Takamatsu J., Rosenberg R.D., Saito H.; "Human ryudocan core protein: molecular cloning and characterization of the cDkA, and chromosomal localization of the gene."; Biophys. Res. Commun. 190:814-822(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'Structural organization and promoter activity of the human ryudocan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -!- SIMILARITY: BELONGS TO THE SYNDECAN FAMILY OF INTEGRAL MEMBRANE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Proteoglycan; Heparan sulfate; Transmembrane; Glycoprotein; Signal.
                                                                                                                15-JUL-1998 (Rel. 36, Last sequence update)
15-FEB-2000 (Rel. 39, Last annotation update)
SYNDECAN-4 PRECURSOR (AMPHIGLYCAN) (SYND4) (RYUDOCAN CORE PROTEIN).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bridgeman A.;
Submitted (APR-1999) to the EMBL/GenBank/DDBJ databases.
--- FUNCTION: CELL SURFACE PROTEOGLYCAN THAT BEAR HEPARAN SULFATE.
---- SUBCELLULAR LOCATION: TYPE I MEMBRANE PROTEIN.
---- TISSUE SPECIFICITY: EXPRESSED IN EPITHELIAL AND FIBROBLASTIC
                                                                                                                                                                                                                                                                 Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi,
Mammalia, Eutheria, Primates, Catarrhini, Hominidae, Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "Molecular cloning of amphiglycan, a novel integral membrane sulfate proteoglycan expressed by epithelial and fibroblastic
                                                                                                                                                                                                                                                                                                                                                                                                                                                David G., van der Schueren B., Marynen P., Cassiman J.-J., van den Berghe H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EXTRACELLULAR (POTENTIAL)
                         198 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   POTENTIAL.
SYNDECAN-4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              POTENTIAL.
DIT STANDALL STANDALL STANDALL STANDALL STANDALL STANDALL STANDALL STANDALL SCHOOL STANDALL SCHOOL STANDALL STA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Cell Biol. 118:961-969(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PFAM; PF01034; Syndecan; 1.
PROSITE; PS00964; SYNDECAN; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Biochem. 119:979-984(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; X67016; CAA47406.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Lumbl, AL021578; CAA16520.1; -
PIR; S26695; S26695.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BAA02550.1; -.
                                                                                                                                                                                                                                                                                                                                                         SECUENCE FROM N.A.
TISSUE-LUNG FIBROBLAST;
MEDLINE; 92363936.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; D13292; BAA02550.
EMBL; D79206; BAA19613.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       18
198
145
170
                                                                                                                                                                                                                                        Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TISSUE=PLACENTA;
MEDLINE; 96390006.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PROTEOGLYCANS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SECUENCE FROM . N. A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE; 93176185.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19
19
146.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DOMAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cells
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene.
```

```
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BINDING
                                                                                                                                                                                                                                                                                       σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CHAIN
                           27
                                                                                                        87
                           d
                                                                ŏ
                                                                                                      원
                                                                                                                                              ö
                                                                                                                                                                                     셤
                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                              This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its way non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ï
                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Borja A.Z., Zeller R., Meijers C.;
"Expression of alternatively spliced bFGF first coding exons and antisense mRNAs during chicken embryogenesis.";
Dev. Biol. 157:110-118(1993).
-!- FUNCTION: THE HEDARIN-BINDING GROWTH FACTORS ARE ANGIGGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                           (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                              (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-FEB-1996 (Rel. 33, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
                                                                                                                                                                                                                           1 MAPARLFALLLFFVGGVAESIRETEVIDPQDLLEGRYFSGALPDDEDVVGPGQESDDFEL 60
                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;
                    O-LINKED (GLYCOSAMINOGLYCAN)
O-LINKED (GLYCOSAMINOGLYCAN)
O-LINKED (GLYCOSAMINOGLYCAN)
F -> L (IN REF. 1).
8229AA2733F77A10 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HEPARIN-BINDING GROWTH FACTOR
                                                                                                                                              DB 1; Length 198;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 522; DB 1; Length 158;
Pred. No. 2.34e-94;
23; Mismatches 36; Indels
                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
7B69B684C17F1816 CRC64;
      CYTOPLASMIC (POTENTIAL)
                                                                                                                                         38.2%; Score 608; DB 1; L4 larity 97.7%; Pred. No. 2.38e-115; Conservative 1; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BY SIMILARITY
                                                                                                                                                                                                                                                                                                                           61 SGSGDLDDLEDSMIGPEVVHPLVPLDAN 88
                                                                                                                                                                                                                                                                                                        61 SGSGDLDDLEDSMIGPEVVHPLVPLDNH 88
                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
198 CN
39 O-
61 O-
63 O-
12 F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      17374 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; M95707; AAA48617.1; -. HSSP; P09038; 1BFF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            32.8%;
Similarity 54.5%;
73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gallus gallus (Chicken).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GROWTH FACTOR) (BFGF).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SUBUNIT: MONOMER
      171
39
61
63
12
198 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        158 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
Matches 73; Conser
                                                                                                                                                              Local Similarity
les 86; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE; 93246053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FGF2 OR FGF-2
                                                                                                                                                                                                                                                                                                                                                                                                      FULT 8
FGF2_CHICK
P48800;
      DOMAIN
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                              CARBOHYD
                                                                                                    SEQUENCE
                                                                                                                                           Ouery Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BINDING
                                             CARBOHYD
                                                                                 CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gallus.
                                                                                                                                                                Best Loca
Matches
      811111
                                                                                                                                                                                                                           硆
                                                                                                                                                                                                                                                                                                        a
                                                                                                                                                                                                                                                                                                                                                                                                                                                  STITE SERVICE SECOND SE
                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                ò
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@ib-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEBS Lett. 224:128-132(1987).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIGGENIC AGENTS
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIGGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                   STANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 146
                                                                                                                                                      SUBUNII: MONOMER.
MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                        AMKEDGRLLLALKCATEECFFFERLESNNYNTYRSRKYSD--WYVALKRTGQYKPGPKTGP 144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-FEB-1996 (Rel. 33, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AFGF.
SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
GHFKDPKRLYCKNGGFFLRINPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVSANRFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Chordata; Craniata; Vertebrata; Euteleostomi;
Cetartiodactyla; Ruminantia; Pecora; Bovoidea,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE; 88055577.
Simpson R.J., Moritz R.L., Lloyd C.J., Fabri L.J., Nice E.C.,
Kubira M.R., Burgess A.W.;
Primary structure of ovine pituitary basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HEPARIN-BINDING GROWTH FACTOR 2. CELL ATTACHMENT SITE (POTENTIAL). CELL ATTACHMENT SITE (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
Sutton R., Ward W.G., Raphael K.A., Cam G.R.;
Submitted (SEP-1994) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MW; B5F2364BA610606D CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                            .155 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             32.4%; Score 516;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HEPARIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GROWTH FACTOR) (BEGF) (PROSTATROPIN)
                                                                                                                                                                                                                                                                                                                                                                                                                                  FGF2_SHEEP STANDARD;
P20003;
01-FEB-1991 (Rel. 17, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ovis aries (Sheep).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Cetartioda
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; L36136; AAA31519.1; -. PIR; S00185; S00185.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRINTS; PRO0262; ILLHBGF.
PRINTS; PRO0263; HBGFFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bovidae; Caprinae; Ovis.
                                                                                                                                                                                                                                                     145 GOKAILFLPMSAKS 158
                                                                                                                                                                                                                                                                                                                207 GOKAILFLPLPVSS 220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  155
48
90
31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PIR; S00185; S00185.
HSSP; P09038; 1BFF.
PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      [2]
SEQUENCE OF 9-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FGF2 OR FGF-2
```

œ

```
MEDLINE; 87119165.
        ä
                                                                                                                                                                                                                                                                                                                                                                                             23-0CT-1986 (Rel. 02, Created)
23-0CT-1986 (Rel. 02, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTATROPIN) (CONTAINS: KIDNEY-DERIVED GROWTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE; 86016731.
ESCH F., Baird A., Ling N., Ueno N., Hill F., Denoroy L., Klepper R., Gospodarowicz D., Boehlen P., Guillemin R.; Primary structure of bovine pituitary basic fibroblast growth factor (FGF) and comparison with the amino-terminal sequence of bovine brain
                                                                                           84 AMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGPKTGP 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Baird A., Esch F., Boehlen P., Ling N., Gospodarowicz D.; "Isolation and partial characterization of an endothelial cell growth factor from the bovine kidney: homology with basic fibroblast growth
                                                                   83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.;
Human basic fibroblast growth factor: nucleotide sequence, genomic
organization, and expression in mammalian cells ";
Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).
                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bos taurus (Bovine).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
                                                                 24 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ueno N., Baird A., Esch F., Ling N., Guillemin R.; "Isolation of an amino terminal extended form of basic fibroblast growth factor.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Abraham J.A., Mergia A., Whang J.L., Tumolo A., Friedman J., Hjerrild K.A., Gospodarowicz D., Fiddes J.C., "Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fibroblast growth factor.";
                            5
                            Indels
Pred. No. 6.64e-93;
22: Mismatches 36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Proc. Natl. Acad. Sci. U.S.A. 82:6507-6511(1985)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Biochem. Biophys. Res. Commun. 138:580-588(1986)
                                                                                                                                                                                                                                                                                                                                                             155 AA.
                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Regul. Pept. 12:201-213(1985)
    55.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Science 233:545-548(1986).
                          74; Conservative
                                                                                                                                                                                                                                                                                                                                                             STANDARD;
                                                                                                                                                                                                                                                           142 GOKAILFLPMSAKS 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bovidae; Bovinae; Bos
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE OF 10-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OF 1-9.
86295737.
    Best Local Similarity
Matches 74; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE; 86095426.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A. MEDLINE; 86261806.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A. MEDLINE; 87217066.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE OF 25-41.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE OF 21-40.
FISSUE-KIDNEY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OR FGF-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ISSUE-KIDNEY
                                                                                                                                                                                                                                                                                                                                       r 10
FGF2_BOVIN
P03959;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     acidic FGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      factor.
                                                                                                                                                                                                                                                                          207
                                                                                                                                                                                                                                                                                                                                         RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RTT REPRESENT TO THE REPRESENT TO THE REPRESENT THE REPRES
                                                                                                                                                                                                                                 ద
                                                                 d
                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                          ò
                                                                                                          ò
                                                                                                                                             g
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@lsb-sib.ch).
                                                                                                                                                 from
                                                                                                                                                                                                                                                            AFGF. - SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                       "Three-dimensional structures of acidic and basic fibroblast growth
Ueno N., Baird A., Esch F., Shimasaki S., Ling N., Guillemin R.; "Purification and partial characterization of a mitogenic factor boyne liver: structural homology with basic fibroblast growth
                                                                                                            Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
Hsu B.T., Rees D.C.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KIDNEY-DERIVED GROWTH FACTOR.
CELL ATTACHMENT SITE (POTENTIAL)
CELL ATTACHMENT SITE (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HEPARIN-BINDING GROWTH FACTOR 2.
                                                                                                                                                                                                                                                                                                                                                                                                                 PIR; A24663; GKBOB.

PIR; A24819; A24819.

PIR; A32818; A3288.

PBB; BASS 31-0CT-93.

PRINTS; PR00262; ILIHBGF.

PRINTS; PR00263; HBGFFGF.

PROSTIE; PS00247; HBGF FGF; 1.

Growth factor; Mitogen; Vascularization; Heparin-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (POTENTIAL) (POTENTIAL)
                                                                       [7]
X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HEPARIN
HEPARIN
                                                         Regul. Pept. 16:135-145(1986)
                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; M13440; AAA30518.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE; 91095983.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3D-structure.
PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
CHAIN
SITE
SITE
BINDING
BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TURN
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRAND
HELIX
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAND
                                              factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HELIX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HELIX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        rurn
```

```
resolution.
                                                                                                                                                                                                                                                                      factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             X-RAY
   1;
                                                                                                            87 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 146
                                                                                                                                           AMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGPKTGP 141
                                                                                                                                                                                                                                                       01-NOV-1988 (Rel. 09, Created)
01-NOV-1988 (Rel. 09, Last sequence update)
01-NOV-1997 (Rel. 35, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (PFGF) (PROSIATROPIN).
                                                                                           83
                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.; "Human basic fibroblast growth factor: nucleotide sequence, genomic organization, and expression in mammalian cells."; cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).
                                                                                         GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAAERGVVSIKGVCANRYL
                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sommer A., Brewer M.T., Thompson R.C., Moscatelli D., Presta M., Rifkin D.B.; "A form of human basic fibroblast growth factor with an extended amino terminus.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          factor are
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Kurokawa T., Sasada R., Iwane M., Igarashi K.;
"Cloning and expression of cDNA encoding human basic fibroblast
                                                                                                                                                                                                                                                                                                                                                                               Abraham J.A., Whang J.L., Tumolo A., Mergia A., Friedman J.,
Gospodarowicz D., Fiddes J.C.;
"Human Dasic fibroblast growth factor: nucleotide sequence and
                                                                       5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Prats H., Kaghad M., Prats A.C., Klagsbrun M., Lelias J.M.,
Liauzun P., Chalon P., Tauber J.P., Amalric F., Smith J.A.,
                                                   Length 155;
                                                                                                                                                                                                                                                                                                                                         Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo
                                                  Score 516; DB 1; Length 155
Pred. No. 6.64e-93;
22; Mismatches 36; Indels
142
146
151
17250 MW; BE6CE70FA6107129 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Caput D.;
"High molecular mass forms of basic fibroblast growth
initiated by alternative CUG codons.";
Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Biochem. Biophys. Res. Commun. 144:543-550(1987)
                                                                                                                                                                                                                                       155 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Lett. 213:189-194(1987)
                                                 32.4%;
Similarity 55.2%;
74; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                             genomic organization."; EMBO J. 5:2523-2528(1986).
                                                                                                                                                                                                                                      STANDARD;
                                                                                                                                                                         142 GOKAILFLPMSAKS 155
                                                                                                                                                                                            207 GORAILFLPLPVSS 220
 141
144
148
155 AA;
                                                                                                                                                                                                                                                                                                                    Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                  (2)
SEQUENCE FROM N.A.
MEDLINE; 87217066.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A. MEDLINE; 87213238.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                        87053817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE; 89184522.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            87162468
                                                                                                                                                                                                                                                                                                           OR FGFB.
                                                                                                                                                                                                                                     FGF2_HUMAN
P09038;
                             SEQUENCE
                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE;
                                                             Local
          HELIX
STRAND
                                                             Best Loc
Matches
  SFFF
                                                                                                                                                                                                                                               ô
                                                                                                                                셤
                                                                                                                                                      ö
                                                                                                                                                                        엄
```

```
MEDLINE; 86275260.
Gautschi P., Frater-Schroeder M., Boehlen P.;
Gautschi P., Frater-Schroeder M., Boehlen P.;
"Partial molecular characterization of endothelial cell mitogens from human brain: acidic and basic fibroblast growth factors.";
FEBS Lett. 204:203-207(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE: 97040521.
MEDLINE: 97040521.
MOY F.U., Seddon A.P., Boehlen P., Powers R.;
"High-resolution solution structure of basic fibroblast growth factor determined by multidimensional heteronuclear magnetic resonance spectroscopy.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES AFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Zhang J., Cousens L.S., Barr P.J., Sprang S.R.;
"Three-dimensional structure of human basic fibroblast growth factor,
a structural homolog of interleukin 1 beta.";
Proc. Natl. Acad. Sci. U.S.A. 88:3446-3451(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDILINE; 94004464.

Eriksson A.E., Cousens L.S., Matthews B.W.;

Eriksson A.E., Cousens L.S., Matthews B.W.;

"Refinement of the structure of human basic fibroblast growth factor at 1.6-A resolution and analysis of presumed heparin binding sites by selenate substitution.";

Protein Sci. 2:1274-1284(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE OF 2-22.
MEDLINE: 87156686.
Story M.T., Esch F., Shimasaki S., Sasse J., Jacobs S.C., Lawson R.K. Manino-terminal sequence of a large form of basic fibroblast growth factor isolated from human benign prostatic hyperplastic tissue.";
Biochem. Biophys. Res. Commun. 142:702-709(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Three-dimensional structures of acidic and basic fibroblast growth
                                                                                                                                                                                                                                                                                                                               Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.; "Human Drain-derived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitogenic activities."; Biochem. Biophys. Res. Commun. 135:541-548(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                spectroscopy.";
Biochemistry 35:13552-13561(1996).
Biochemistry 35:13552-13561(1996).
Biochemistry 35:14552-13561(1996).
Biochemistry 36:13552-13561(1996).
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES VITTO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           X-RAY CRNSTALLOGRAPHY (1.6 ANGSTROMS).
MEDLINE; 92121151.
Ago H., Kitagawa Y., Fujishima A., Matsuura Y., Katsube Y.;
"Crystal structure of basic fibroblast growth factor at 1.6-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE; 91195367.
Eriksson A.E., Cousens L.S., Weaver L.H., Matthews B.W.;
"Three-dimensional structure of human basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE; 91095983.
Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa
Hsu B.T., Rees D.C.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Proc. Natl. Acad. Sci. U.S.A. 88:3441-3445(1991)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      X-RAY CRYSTALLOGRAPHY (1.8 ANGSTROMS). MEDLINE; 91195368.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CRYSTALLOGRAPHY (2.8 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      J. Biochem. 110:360-363(1991).
[13]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Science 251:90-93(1991).
                                                                                                                                                                                                                                                    SEQUENCE OF 10-39
                                                                                                                                                                                                                                                                                          86186784
```

1;

Gaps

.; ?

```
This SWISS-PROT entry is copyright. It is produced through a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 El-Bussein A.E.D., Paterson J.A., Myal Y., Shiu R.P.C.;
"PCR detection of the rat brain basic fibroblast growth factor (bFGF)
mRNA containing a unique 3' untranslated region.";
Biochim. Biophys. Acta 1131:314-316(1992).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Shimmsaki S., Emoto N., Koba A., Mercado M., Shibata F., Cooksey K., Baird A., Ling N.; "Complementary DNa cloning and sequencing of rat ovarian basic fibroblast growth factor and tissue distribution study of its mRNA."; Biochem. Biophys. Res. Commun. 157:256-263(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                          -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                    84 AMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYT--SWYVALKRTGQYKLGSKTGP 141
                                                                                                                                                                                                                                                                                                                                                                                                                                01-JAN-1990 (Rel. 13, Created)
01-JAN-1990 (Rel. 13, Last sequence update)
01-JAN-1990 (Rel. 36, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (PROSTATROPIN)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
                                                                                                  24 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL 83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAIN-STANDED.
MEDLINE; 97.00905.
PASUMAITHI K.B.S., Jin Y., Cattini P.A.;
"Cloning of the rat fibroblast growth factor-2 promoter region and "cloning of the rat fibroblast growth factor-2 promoter region and "response to mitogenic stimuli in glioma C6 cells.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE; 88262516.
Krockawa T., Seno M., Igarashi K.;
"Nucleotide sequence of rat basic fibroblast growth factor cDNA.";
Nucleic Acids Res. 16:5201-5201(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TISSUE SPECIFICITY: FOUND IN ALL THE TISSUES EXAMINED
                 Length 155,
                                      Pred. No. 3.28e-91;
23; Mismatches 36; Indels
                   DB 1;
                                                                                                                                                                                                                                                                                                                                                                                             154 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CONCENTRATION OF THESE 2 GROWTH FACTORS
                   Score 509;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE OF 1-28 FROM N.A.
STRAIN-SPRAGUE-DAWLEY; TISSUE-TESTIS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAIN-SPRAGUE-DAWLEY; TISSUE-OVARY; MEDLINE; 89061721.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 35-154 FROM N.A.
STRAIN-SPRAGUE-DAWLEY; TISSUE-BRAIN;
MEDLINE; 92329546.
                                                                                                                                                                                                                                                                                                                                                                                             PRT;
               Query Match
Best Local Similarity 54.5%;
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                           STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Rattus norvegicus (Rat).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -!- MISCELLANEOUS: THIS
                                                                                                                                                                                                                                                                                             142 GOKAILFLPMSAKS 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SUBUNIT: MONOMER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OR FGF-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TISSUE-BRAIN;
                                                                                                                                                                                                                                                                                                                                                                        T 12
FGF2_RAT
P13109;
                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                     엄
                                                                                                    g
                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                              ò
                                    This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@labsib.ch).
SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HEPARIN-BINDING GROWTH FACTOR 2.
CELL ATTACHMENT SITE (POTENTIAL)
CELL ATTACHMENT SITE (POTENTIAL)
HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PFAM; PF00167; FGF; 1.
PRINTS: PR00262; ILLHBGF.
PRINTS: PR00247; HBGFFGF; 1.
PROSITE: PS00247; HBGFE_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            17254 MW; BE6CE13373007129 CRC64;
                                                                                                                                                                                                     EMBL; M17599; AAA52534.1; ALT_INIT.
EMBL; X04431; CAA28027.1; -.
EMBL; X04432; CAA28028.1; -.
                                                                                                                                                                                                                                                                 X04433; CAA28029.1; -.
M27968; AAA52448.1; -.
J04513; AAA52533.1; ALT_INIT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         08-NOV-96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           03-APR-96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1-JAN-94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     30-APR-94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        96-VON-80
                                                                                                                                                                                                                                                                                                                                                                                                                B32878.
S00297.
                                                                                                                                                                                                                                                                                                                                                                                                                                                           2FGF; 15-APR-92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           148
155 AA;
                                                                                                                                                                                                                                                                                                                               A25824; A25824
                                                                                                                                                                                                                                                                                                                                                                                             B24301
                                                                                                                                                                                                                                                                                                                                                  A26642;
B24243;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3D-structure.
PROPEP
                                                                                                                                                                                                                                                                                                                                                                                           B24301;
                                                                                                                                                                                                                                                                                                                                                                                                                   B32878;
```

\$00297;

PIR; PIR; PDB; PIR;

PDB;

EMBL;

EMBL; EMBL;

134920

SITE SITE BINDING BINDING SIRAND TURN SIRAND TURN TURN TURN

SOTITE TO THE PETETE THE TENT THE TENT TO DESCRIP

CHAIN

STRAND

STRAND TRAND STRAND

URN

STRAND SEQUENCE

STRAND STRAND TURN

STRAND

ELIX

HELIX STRAND TURN STRAND

URN

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its
between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Dev. Biol. 138:454-463(1990).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hebert J.M., Basilico C., Goldfarb M., Haub O., Martin G.R.; "Isolation of cDNAs encoding four mouse FGF family members and characterization of their expression patterns during embryogenesis."; Dev. Biol. 138:454-463(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   83 AMKEDGRLLASKCVTEECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGSKTGP 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-APR-1990 (Rel. 14, Created)
01-APR-1990 (Rel. 14, Last sequence update)
01-FB-1996 (Rel. 33, Last annotation update)
01-FB-1996 (Rel. 33, Last annotation update)
GROWTH FAACHOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTATROPIN)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               23 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYL 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ;
                                                                                                                                                                                                                                                                                                                                                                                                  HEPARIN-BINDING GROWTH FACTOR 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 1; Length 154;
                                                                                                                                                                                                                                                                                             PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pred. No. 5.73e-91;
23; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                    HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
1A0F14FF423D8403 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            154 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 508;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRT;
                                                                                                                                     EMBL; M22427; AAA41210.1; -.
EMBL; X07285; CAA30265.1; -.
EMBL; U78079; AAC53225.1; -.
EMBL; X61697; CAA43863.1; -.
PIR; S00876; S00876.
                                                                                                                                                                                                                                                                                                                                                                                                                                                         17139 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                31.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local Similarity 54.5%;
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                    30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             111111111:: 1
207 GQKAILFLPLPVSS 220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         141 GOKAILFLPMSAKS 154
                                                                                                                                                                                                                                                                                                                                                                                                154
                                                                                                                                                                                                                                                        HSSP; P09038; 1BFF.
PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mus musculus (Mouse)
                                                                                                                                                                                                                                                                                                                                                                                                                                                         154 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A. MEDLINE; 90201563.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FGF2 OR FGF-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FGF2_MOUSE
P15655;
                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                  BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                   SO
  合
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                               ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE; 94296558.

Kusewitt D.F., Sabourin C.L.K., Sherburn T.E., Ley R.D.;

the marsupial Monodelphis domestica.";

DNA Cell Biol. 13:549-554(1994).

-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS

IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN

VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND

CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     87 ANYKRPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              83 AMKEDGRLLASKCVTEECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGSKTGP 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                  23 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYL 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-FEB-1996 (Rel. 33, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
01-NOV-1997 (Rel. 35, Last annotation update)
FREPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (PROSIATROPIN).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -! - SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Euteleostomi;
Monodelphis.
                                                                                                                                                                                                                                                                                                                                                                                                               5;
                                                                                                                                                                                                                                                                                HEPARIN-BINDING GROWTH FACTOR 2.
                                                                                                                                                                                                                                                                                                                                                                           Length 154;
                                                                                    EMBL; M30644; AAA37621.1; -.
PIR; C37360; C37360.
HSSP; P09038; 1BFF.
MGD; MGI:95516; FGF.
PFAM; PF00167; FGF; 1.
PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                                                                                           Score 508; DB 1; Length 154
Pred. No. 5.73e-91;
23; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
689F677416274388 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Mammalia; Metatheria; Didelphlmorphia; Didelphidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Monodelphis domestica (Short-tailed grey opossum).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               156 AA.
                                                       or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                      17153 MW;
                                                                                                                                                                                                                                                                                                                                                                           Query Match 31.9%;
Best Local Similarity 54.5%;
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                                             154
30
118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  141 GOKAILFLPMSAKS 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUBUNIT: MONOMER
                                                                                                                                                                                                                                                                            10 1
26
115 1
154 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FGF2_MONDO
P48798;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LISSUE-EYE
                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                  BINDING
                                                                                                                                                                                                                                                                                CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
```

```
STETERS
                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                   õ
                                                                                                                                                                                                                                                                                                                                              엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                          85 AMKEDGRLLALKYVTEECFFFERLESNNYNTYRSRKYS--NWYVALKRTGQYKLGSKTGP 142
                                                                                                                                                                                                                                                                                                                                   2e11 51:869-877(1987)
                                                                                                                                                                                                                                                           25 GHFKDPKRLYCKNGGFFLRIHPDGRVDGIREKSDPNIKLQLQAEERGVVSIKGVCANRYL 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-JAN-1990 (Rel. 13, Last sequence update)
01-NOV-1997 (Rel. 35, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
                                                                                                                                                                                                                              2; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Kimelman D., Abraham J., Haaparanta T., Palisi T., Kirschner M.; The presence of fibroblast growth factor in the frog egg: its role as a natural mesoderm inducer."; Science 242:1053-1056(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Xenopus laevis (African clawed frog).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Kimelman D., Kirschner M.; "Synergistic induction of mesoderm by FGF and TGF-beta and the identification of an mRNA coding for FGF in the early Xenopus
                                                                                                               BY SIMILARITY.

BPARIN-BINDING GROWTH FACTOR 2.

HEPARIN (POTENTIAL).

HEPARIN (POTENTIAL).

', 7E655FCC49BF1209 CRC64;
                                                                                                                                                                                                  Length 156;
                                                                                                                                                                                                Score 498; DB 1; Length 156
Pred. No. 1.49e-88;
22; Mismatches 37; Indels
                                                                                                 Heparin-binding.
                         HSSP; P09038; IBFF.
PPRAM; PF00167; FGF; 1.
PRINTS; PR00262; ILLHBGF.
PRINTS; P800263; HBGFFGF.
PROSITE; P800247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; PR0PEP
             EMBL; 215154; CAA78854.1; ALT_INIT
                                                                                                                1 9 BY
10 156 HE
28 32 HE
117 120 HE
156 AA; 17303 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (Rel. 12, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         [2].
SEQUENCE OF 95-155 FROM N.A.
MEDLINE; 88052890.
                                                                                                                                                                                                31.3%;
llarity 54.5%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; M18067; AAA49726.1; -. PIR; A29618. PIR; A40117; A40117. HSSP; P09038; 1BFF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                              207 GQKAILFLPLPVSS 220
                                                                                                                                                                                                                                                                                                                                                                           143 GOKAILFLPMSAKS 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FACTOR) (BFGF).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Xenopodinae; Xenopus.
                                                                                                                                                                                                  Query Match
Best Local Similarity
Matches 73; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A. MEDLINE; 89058621.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FGF2 OR FGF-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-OCT-1989
01-JAN-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                 LT 15
FGF2_XENLA
P12226;
                                                                                                                                                                       SEQUENCE
                                                                                                                                          BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  embryo.
                                                                                                                                                      BINDING
අු
                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŏ
```

```
84 AMKEDGRLTSLRCITDECFFFERLEANNYNTYRSRKYS--SWYVALKRTGQYKNGSSTGP 141
                                                                                                                                                                                                                                                          24 GSFKDPKRLYCKNGGFFLRINSDGRVDGSRDKSDSHIKLQLQAVERGVVSIKGITANRYL 83
                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                           5
                                                                                            HEPARIN-BINDING GROWTH FACTOR
                                                                                                                                                                                             Length 155;
PFAM; PF00167; FGF; 1.
PRINTS; PR00262; IIJHBGF.
PRINTS; PR00263; HBGFEF.
PROSITE; PR00247; HBGFEFF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                                         Pred. No. 2.21e-86;
24; Mismatches 37; Indels
                                                                                                            HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
MISSING (IN REF. 2).
7 036735C8063142FD CRC64;
                                                                                                                                                                                             DB 1;
                                                                                                                                                                                         Score 489;
                                                                                                                                                             17241 MW;
                                                                                                                                                                                         Query Match 30.7%;
Best Local Similarity 53.0%;
Matches 71; Conservative
                                                                                                                                                                                                                                                                                                                                                                                         142 GOKAILFLPMSAKS 155
                                                                                                               \frac{31}{119}
                                                                                                                                                                                                                                                                                                                                                                                                                         207 GOKAILFLPLPVSS 220
                                                                                                                           116 1
111 1
155 AA;
                                                                                                                                               SEQUENCE
                                                                                                               BINDING
                                                                                                                              BINDING
                                                                               PROPEP
                                                                                                CHAIN
```

Search completed: Tue Aug 29 15:37:56 2000 Job time: 13 secs.

*	·
*	(TM)
*	
**	
www.www.www.www.ww.ww.ww.ww.ww.ww.ww.ww	
***	
***	
*	 
K K	
k k k	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
k k	
	'

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

protein - protein database search, using Smith-Waterman algorithm MPsrch\_pp

Tue Aug 29 15:38:14 2000; MasPar time 19.48 Seconds 786.734 Million cell updates/sec . 00

JUS-109-121-017B-1 (1-221) from USO9121017B.pep 1593 1 MAPARLFALLLFFVGGVAES......PRTHYGQKAILFLPLPVSSD 221 rabular output not generated. Description: Perfect Score: Sequence: Title:

225878 seqs, 69334122 residues Searched:

PAM 150 Gap 11

Scoring table:

Minimum Match 0% Listing first 45 summaries Post-processing:

Database:

Mean 44.785; Variance 70.998; scale 0.631 Statistics:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

		æ			SUMMARIES		
Result No.	Score	Query Match	Query Match Length DB	DB	GI GI	Description	Pred. No.
-	511	33.1	420		636660		
4	1	7.70	201	0	19110	BASIC FIBROBLASI GROWI	7.286-95
7	209	32.0	196	4	P78443	21 KD BASIC FIBROBLAST	7.23e-95
m	382	24.0	101	13	P79706	BASIC FGF (FRAGMENT).	1.85e-63
4	359	22.5	198	11	035988	RYUDOCAN CORE PROTEIN	6.87e-58
'n	346	21.7	146	13	007659	FIBROBLAST GROWTH FACT	9.21e-55
φ	313	19.6	115	1	060487	BASIC FIBROBLAST GROWT	6.68e-47
7	302	19.0	194	φ	P79150	KERATINOCYTE GROWTH FA	2.62e-44
∞	301	18.9	212	13	042407	FIBROBLAST GROWTH FACT	4.49e-44
6	274	17.2	252	11	960680	FHF-4B.	8.79e-38
10	270	16.9	70	11	054837	FIBROBLAST GROWTH FACT	7.36e-37
11	264	16.6	59	4	016089	ACIDIC FIBROBLAST GROW	1.76e-35
12	265	16.6	9	4	016588	ACIDIC FIBROBLAST GROW	1.04e-35
13	260	16.3	196	13	Q9YH31.	PUTATIVE FIBROBLAST GR	1.46e-34
14	257	16.1	243	13	Q9W6A1	FIBROBLAST GROWTH FACT	7.05e-34
15	251	15.8	127	7	099517	FIBROBLAST GROWTH FACT	1.64e-32
16	250	15.7	206	13	Q9YGD8	FIBROBLAST GROWTH FACT	2.76e-32
17	248	15.6	192	7	095830	FIBROBLAST GROWTH FACT	7.86e-32
18	248	15.6	245	13	Q9W6A2	FIBROBLAST GROWTH FACT	7.86e-32
19	236	14.8	200	13	P79925	FIBROBLAST GROWTH FACT	3.98e-29
20	226	14.2	425	S	076831	LET-756 PROTEIN.	6.79e-27

1.13e-26	3.14e-26	5.22e-26	6.61e-25	4.99e-24	3.73e-23	1.02e-22	5.45e-21	8.94e-21	1.97e-18	1.37e-17	3.61e-17	3.61e-17	2.95e-12	6.75e-05	1.51e-04	7.38e-04	3.49e-03	3.36e-02	4.86e-02	4.86e-02	2.07e-01	2.96e-01	2.96e-01	2.96e-01
E GROWI	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	FGF HOMOLOG.	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	R33683_2.	FIBROBLAST GROWTH FACT	FGF-ACMNPV ORF32.	FGF-19.	FIBROBLAST GROWTH FACT	BASIC FIBROBLAST GROWT	BASIC FIBROBLAST GROWT	FIBROBLAST GROWTH FACT	CONSERVED PROTEIN.	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	NUCLEOSOME ASSEMBLY PR	HYPOTHETICAL 27.5 KD P	211AA LONG HYPOTHETICA	481AA LONG HYPOTHETICA	PEROXIDASE/CATALASE (E	MITOCHONDRION ASPERGIL	REPLICATIVE DNA HELICA	POLYPROTEIN.
077561	030696	057341	P91672	014915	042278	060371	Q9YMH2	092401	095750	097573	016443	000527	035340	027154	062682	P79685	088701	073554	Q9YEE7	074081	059651	937406	051138	011979
9	13	13	ഗ	4	2	4	14	14	4	ဖ	4	4	11	٦	ဖ	13	Π	14	۱		~	æ	7	14
74	204	210	770	244	210	129	285	182	216	73	114	114	78	822	82	86	375	243	211	481	731	352	455	3443
14.1	14.0	13.9	13.6	13.4	13.1	13.0	12.5	12.4	11.7	11.5	11.4	11.4	6.6	7.4	7.3	7.0	6.8	6.4	6.3	6.3	6.1	0.9	6.0	6.9
225	223	222	217	213	508	20,7	199	198	187	183	181	181	137	118	116	112	108	102	101	101	97	96	96	96
21	22	23	24	25	26	27	28	53	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

## ALIGNMENTS

	PRELIMINARY; PRT; 130 AA.	.998 (TrEMBLrel. 08, Created)	(TremBirel. 08,	(TremBLrel.	FIBROBLAST GROWTH FACTOR (FRAGMENT).	BFGF.	canis iaminista (209). Eukarvota: Metazoa: Chordata: Craniata: Vertebrata: Mammalia:	Eutheria; Carnivora; Fissipedia; Canidae; Canis.	FROM N.A.	TISSUE ADMENDED TO A TANAHUM TO	"The role bFGF in canine Hemanqiosarcoma.":	Submitted (APR-1998) to the EMBL/GenBank/DDBJ databases.	EMBL; AF060562; AAC35912.1;	19038; 1BFF.	PROSITE; PS00247; HBGF_FGF; 1.	.00167; FGF; 1.	130 130	: I30 AA; I4902 MW; DB6A90A4 CRC32;	32.1%; Score 511; DB 6; Length 130;	Conservative	FKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYLAM 60		iendeloondong enleddiyddindrodgalgadgadgadgadgagagagaline i eldgildan 140	KEDGRLLASKCYTDECFFERLESNNYNTYRSRKYSSWYVALKRIGQY) JGPKIGPGQ 118	DIDGLLYGSQTPNEECLELERLEENHYNTYISKKHAEKNWFVGLKKNGSC:RGPRTHYGQ 208	LELPMSAKS 130	TELPUSS 220
				01-NOV-1999 (Trea	FIBROBLAST	familiants	vota: Metazo	ria; Carnivo	SEQUENCE FROM N.A.	E-ADKENAL GI	role begr in	tted (APR-19	AF060562; A	P09038; 1BFF	TE; PS00247;	PFAM; PF00167; FGF;	,		tch	73;	FKDPKRLYCKNO	-   -   -   -   -   -   -   -   -   -	INNENDELCON	KEDGRLLASKCV	ртреция	KAILFLPMSAKS	KAILFLPLPVSS
RESULT 1		AC 0/7767; DT 01-NOV-				GN BFGF.				RC TISSU								SQ SEQUENCE	Query Match	Matches	Db 1	8	3	Db 61	0y 149	Db 119	Qy 209
							_	-														_			-		

ï

196 AA.

PRT;

PRELIMINARY;

RESULT 2 ID P78443

ij

```
SEQUENCE FROM N.A.

C. STRAIN=C3H/AN, AND 129SVJ;

MEDLINE, 97420681.

T. SEQUENCE TO STRAIN=C3H/AN AND 129SVJ;

T. SUGLINE S., KOJIMA T., KATSUMI A., YAMAZAKI T., SUGIURA I., SAITO H.;

T. TSUGUKI S., KOJIMA T., KATSUMI A., YAMAZAKI T., SUGIURA I., SAITO H.;

T. SISUE-SPECIFIC EXPRESSION OF The mouse ryudocan gene.";

J. BIOCHEM. 122:17-24(1997).

C. SULFATE AND THATE BEARS BOTH HEPARAN
SULFATE AND CHONDROITIN SULFATE AND THAT LINKS THE CYTOSKELETON TO
THE INVESTITIAL MATRIX. BINDS BASIC FIBROBLAST GROWTH FACTOR.

EMBL. D89571; BAA22135.1;

R. PRASSITE; PS00964; SYNDECAN; 1.

R. PFAM; PFO1034; Syndecan; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Archosauria; Aves;
Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.
                                                                                                                                                                                                           Gaps
                                                                                                                                                                                    1 PKRLYCKNGGFFLRINSDGKVDGAREKSDSYIKLQLQAEERGVVSIKGVCANRYLAMKDD 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Signal; Proteoglycan; Heparan sulfate; Transmembrane; Glycoprotein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 MAPACLLAPLLLLLGGFPLVPGESIRETEVIDPQDLLEGRYFSGALPDDEDA-G-G--S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6
                                                                                                                                            ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                      Length 101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 198;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 359; DB 11; Length 198
Pred. No. 6.87e-58;
9; Mismatches 8; Indels
                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                        61 GRLMALKWITDECFFFERLESNNYNTYRSRKYSD--WYVALKR 101
                                                                                                                                                                                                                                                                                                                                                                                                                             01-JAN-1998 (TrEMBLrel. 05, Created)
01-JAN-1998 (TrEMBLrel. 05, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
RYUDOCAN CORE PROTEIN PRECURSOR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Last sequence update)
Last annotation update)
                                                                                                Score 382; DB 13; L
Pred. No. 1.85e-63;
18; Mismatches 28;
                                                            1CD93BB0 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  POTENTIAL. FC67B0E5 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                         198 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 57 DDFELSGSGDLDDTEEPRPFPEVIEPLVPLDNH 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    POTENTIAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21482 MW;
                                                            11907 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           y Match 22.5%;
Local Similarity 72.0%;
les 67; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-NOV-1996 (TrEMBLrel. 01,
01-NOV-1996 (TrEMBLrel. 01,
01-NOV-1999 (TrEMBLrel. 12,
                                                                                                Query Match
Best Local Similarity 53.4%;
Matches 55; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FIBROBLAST GROWTH FACTOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
PFAM; PF00167; FGF; 1.
                                         101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mus musculus (Mouse)
                                       101 1
101 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    24
198 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                            SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                    NON_TER
NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LT 5
Q07659
Q07659;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                              035988;
                                                                                                                                                                                                                                                                                                                                                                        7T 4
035988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                        RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RITE
                                                                                                                                                                                      g
                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                 ...
...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    87 ANYKRPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  125 AMKEDGRILASKCVTDECFFFERLESNNYNTYRSRKYT -- SWYVALKRTGQYKLGSKTGP 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             65 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    expression of basic fibroblast growth factor transcripts in human granulosa and cumulus cells from in vitro fertilisation patients."; Blochem. Blophys. Res. Commun. 187:1227-1231(1992).
EMBL; J04513; AAA552532.1; -.
EMBL; 847380; AAD13853.1; -.
HSSP; P09038; 1BFF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                  "Reverse transcription with nested polymerase chain reaction shows
                                                                                                                                                                                                                                          PRATS H., KAGHAD M., PRATS A.C., KLACSBRUN M., LELIAS J.M., LIAUZUN P., CHALON P., TAUBER J.P., AMALRIC F., SMITH J.A., CAPUT "High molecular mass forms of basic fibroblast growth factor are initiated by alternative CUG codons.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SUZUKI A.S., TABATA T., SAKAGUCHI K., TAKABATAKE T., TAKESHIMA K.,
KANEDA T.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                "Serial expression of the genes in a mesodermalizing ectoderms of
                                                                                                                       Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASIC FGF (FRAGMENT).
Cynops pyrrhogaster (Japanese common newt).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Amphibia;
Batrachia; Caudata; Salamandridae; Cynops.
                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE; 93038590.
WATSON R., ANTHONY F., PICKETT M., LAMBDEN P., MASSON G.M.,
THOMAS E.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 509; DB 4; Length 196
Pred. No. 7.23e-95;
23; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               early Cynops gastrula.";
Submitted (NOV-1996) to the EMBL/GenBank/DDBJ databases.
EMBL; D89443; BAA13958.1; -
HSSP; P09038; 2BFH.
PROSITE; PS00247; HBGF_FGF; 1.
                    01-MAY-1997 (TrEMBLrel. 03, Created)
U-MAY-1997 (TrEMBLrel. 03, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
21 KD BASIC FIBROBLAST GROWTH FACTOR (BFGF).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-MAY-1997 (TrEMBLrel. 03, Created)
01-MAY-1997 (TrEMBLrel. 03, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
                                                                                                                                                                                                                                                                                                                          Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          196 AA; 21203 MW; 49B75E39 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             101 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PROSITE; PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE OF 81-168 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Match 32.0%;
Local Similarity 54.5%;
les 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRINTS; PR00262; ILIHBGF.
PRINTS; PR00263; HBGFFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 183 GQKAILFLPMSAKS 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PFAM; PF00167; FGF;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                       SEQUENCE FROM N.A. MEDLINE; 89184522.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TISSUE-EMBRYO;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
```

Best Loca Matches

셤 ŏ g å

5 P

Ξ.

9

T. 3 P79706 P79706;

01-MAY-1997 (TrEMBLrel. 03,

```
ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HANDER REPARED DE LA PROPERTA DE LA PRESENTA DEL PRESENTA DEL PRESENTA DE LA PRES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                             MEDLINE; 90382254.
MITRANI E., GRUENBAUM Y., SHOHAT H., ZIV T.;
"Fibroblast growth factor during mesoderm induction in the early chick
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        45 ERVSAMVKLQLQAEERGVVSIKGVSANRFLAMKEDGRLLALKCATEECFFFERLESNNYN 104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 GFFLRIHPDGRVDGVREKTDPHIKHNFKPKA-EELCYQGSLSNRYLAMKEDGRLLASKCV 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
              MEDLINE; 93246053.

BORAA A.2., ZELLER R., MEIJERS C.;
BORAS Solon of alternatively spliced bFGF first coding exons and antisense mRNAs during chicken embryogenesis.";
Dev. Biol. 157:110-118(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              m
i
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 146;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19.6%; Score 313; DB 11; Length 115; larity 44.6%; Pred. No. 6.68e-47; Conservative 22; Mismatches 31; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RICCIARDELLI C.;
Submitted (JAN-1996) to the EMBL/GenBank/DDBJ databases.
EMBL; 175974; AAR85394.1;
HSSP: P09038; 2BFH.
PROSITE; PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               105 TYRSRKYSD--WYVALKRTGQYKPGPKTGPGQKAILFLPMSAKS 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
Cavia porcellus (Guinea pig).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              161 NEECLFLEERLEENHYNTYISKKHAEKNWFYGLKKNGSCKRG 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60 TDECFFFFRLESNNYNTYRSRKYS -- SWYVALKRIGQYKLG 98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 346; DB 13;
Pred. No. 9.21e-55;
20; Mismatches 32;
                                                                                                                                                                                                                                                                                                                                                                                      PFAM; PF00167; FGF; 1.
PRINTS; PR00262; ILIHBGF.
SEQUENCE 146 AA; 16182 MW; 44C5274B CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE 115 AA; 13495 MW; 4B12914A CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                115 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                         Development 109:387-393(1990).
                                                                                                                                                                                                                                                                                                                                                                  PROSITE; PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                                                                            EMBL; M95706; AAA48616.1; -...
EMBL; X56804; CAA40139.1; -..
HSSP; P09038; 2BFH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21.7%;
llarity 48.1%;
Conservative
                                                                                                                                                          SEQUENCE OF 52-85 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ouery Match
Best Local Similarity '
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity
Matches 45; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TISSUE-PROSTATE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                      embryo."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LT 6
Q60487
Q60487;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NON_TER
셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STREET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
```

```
MEDLINE, 96226403.

CANATAN H., CHANG W.Y., SUGIMOTO Y., SHIDAIFAT F., KULP S.K.,
BRUEGGEMEIER W., LIN Y.C.;

"Kerathnocyte growth factor (KGF/FGF-7) has a paracrine role in canine
prostate: molecular cloning of mRNA encoding canine KGF.";

DNA Cell BAOL 15:247-254 (1996).

EMBL: U80800; AAB38972.1; -

HSSP: P05230; 2AFG.

PROSITE; PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-JAN'-1998 (TrEMBLrel. 05, Created)
01-JUN-1998 (TrEMBLrel. 06, Last sequence update)
01-NOY-1999 (TREMBLrel. 12, Last annotation update)
FIBROBLAST GROWTH FACTOR 10.
Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Archosauria; Aves;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
MEDLINE; 97330690.
OHUCHI H., NARAGAMA T., YAMAMOTO A., ARAGA A., OHTA T., ISHIMARU Y.,
YOSHIOKA H., KUWANA T., YOHNO T., YAMASAKI M., ITOH N., NOJI S.;
"The mesenchymal factor, FGFIO, initiates and maintains the outgrowth
of the chick limb bud through interaction with FGF8, an apical
ectodermal factor.";
ENGL: D86333; BAZ44(1997).
EMBL: D86333; BAZ4445-1;
HSSP; P03968; IBAR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            145 YLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYIS-R-KHARKNWFVGLKKNGSCKRGP 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           129 SIKSNYYLAMNKKGKVYGSKEFNSDCKLKERIEENGYNTYASLNWKHNGRQMFVALNGRG 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   59 MEGGDIRVRRLFCRTQ-WYLRIDKRGKVKGTQEMKNSYNIMEIRTVAVGIVAIKGVESEY 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               118 YLAMNKEGKLYAKKECNEDCNFKELILENHYNTYASAKWTHSGGEMFVALNQKGVPVRGK 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           71 VRSYNHLØGDVRKRKL-Y-SYNKYFLKIEKNGKVSGTKKENCPFSILEITSVEIGVVAVK 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               <u>ښ</u>
                      01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
KERATINGCYTE GROWTH FACTOR.
Canis familiaris (Dog)
Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Carnivora; Fissipedia; Canidae; Canis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 18.9%; Score 301; DB 13; Length 212; Best Local Similarity 37.5%; Pred. No. 4.49e-44; Matches 54; Conservative 31; Mismatches 55; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 194;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 302; DB 6; Length 194
Pred. No. 2.62e-44;
33; Mismatches 52; Indels
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         C8AB1883 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2B71A8ED CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            212 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                PFAM, PF00167; FGF; 1.
PRINTS; PR00263; 1L1HBGF.
PRINTS; PR00263; HBGFFCF.
SEQUENCE 194 AA; 22476 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         212 AA; 23631 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Match 19.0%;
Local Similarity 35.8%;
es 49; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           :| ||: |||::::
203 RTHYGQKAILFLPLPVS 219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      178 KTKKEQKTAHFLPMAIT 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PFAM; PF00167; FGF; 1.
PRINTS; PR00263; HBGFFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRELIMINARY;
                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LT 8
042407
042407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
```

3,

4

Ŕ

01-MAY-1997 (TrEMBLrel. 03, Created)

PRELIMINARY;

7 P79150 P79150;

RESULT ID P7 AC P7 DT 01

```
37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cells.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LT 12
Q16588
Q16588;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
  Matches
                                                                                                                                          SO DR HE BETT SEED OF THE SEED
                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ä
80 LYCRQG-YYLQMHPDGALDGTKDDSTNSTLFNLIPVGLRVVAIQGVKTGLYIAMNGEGYL 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           139 YPSELFTPECKFKESVFENYYVIYSSMLYRQQESGRAWFLGLNKEGQVMKGNRVKKTKPA 198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE; 98267141.
YAMANOTO S., MIKAMI T., OHBAYASHI N., OHTA M., ITOH N.;
"Structure and expression of a novel isoform of mouse FGF homologous factor (FHF)-4.";
Biochim. Biophys. Acta 1398:38-41(1998).
EMBL, AB008908; BAA31544.1;
ESEMBL, BAR008907; BAA31543.1;
HSSP; P03968; 1BAR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .,
.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mammalia;
Mus.
                                                                                                                                                                                                                                                                                                                          Mammalia;
                                                                                                                                                                                                                                                                                                   Rattus norvegicus (Rat), and Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammali
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 11; Length 252;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 70;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 274; DB 11; Length 25
Pred. No. 8.79e-38;
26; Mismatches 49; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
STRAIN-C3H/HEN; TISSUE-LIVER;
ZHANG Y.-X., HACKSHAW K.V.;
SUDMITTED (JUL-1997) to the EMBL/GenBank/DDBJ databases.
EMBL; AF012233; AB94020.1; -.
HSSP; P05233; ZAXM.
PFAM; PF00167; FGF; 1.
                                                                                                                                                        UT 9
089096 PRELIMINARY; PRT; 252 AA.
089096; 010VV-1998 (TIEMBLrel. 08, Casted)
01-NOV-1999 (TIEMBLrel. 08, Last sequence update)
01-NOV-1999 (TIEMBLrel. 12, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-JUN-1998 (TrEMBLrel. 06, Created)
01-JUN-1998 (TrEMBLrel. 06, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
FIBROBLAST GROWTH FACTOR-1 (FRAGMENT)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 270; DB 11;
Pred. No. 7.36e-37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PROSITE; PS00247; HBGF_FGF; 1.
PFAM; PF00167; FGF; 1.
SEQUENCE 252 AA; 28364 MW; 1DFD5B4B CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15AlbE5E CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    70 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                 189 ATKRGQKTRRKNTSAHFLPMVVMS 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  70 AA; 7677 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       16.9%;
92.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                h 17.2%;
Similarity 37.5%;
48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mus musculus (Mouse).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Local Similarity
Matches 48; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           199 AHFLPKPL 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  211 ILFLPLPV 218
                                                                                                                                                                                                                                                                                                                                                                                                       TISSUE-BRAIN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                054837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                 ROSSEPTE
                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ογ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           q
                    ö
                                                                                                  ò
```

```
ö
ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
MEDDINE: 94069734.
ZHAO.N.M.: YEOH T.K., HIEBERT M., FRIST W.H., MILLER G.G.;
ZHAO.N.M. YEOH T.K., HIEBERT M., FRIST W.H., MILLER G.G.;
The expression of acidic fibroblast growth factor (heparin-binding growth factor-1) and cytokine genes in human cardiac allografts and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDINE; 94069734.
ZHAO X.M., TEOH T.K., HIEBERT M., FRIST W.H., MILLER G.G.;
ZHAO X.M., TEOH T.K., HIEBERT M., FRIST W.H., MILLER G.G.;
The expression of acidic fibroblast growth factor (heparin-binding growth factor-1) and cytokine genes in human cardiac allografts and
  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TURCK E.J.;
"An acidic fibroblast growth factor protein generated by alternate splicing acts like an antagonist.";
J. Exp. Med. 175:1073-1080(1992).
EMBL; S67292; AAB29058.1;
EMBL; X65779; CAA46662.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE; 92202857.
LI Y.L., KHA H., GOLDEN J.A., MIGCHIELSEN A.A.J., GOETZL E.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
  ï
                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota, Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                  O16089 PRELIMINARY; PRT; 59 AA. 016089 O16089 (TEMBLTEL 01, Created) O1-NOV-1996 (TEMBLTEL 01, Last sequence update) O1-NOV-1999 (TEMBLTEL 12, Last annotation update) ACIDIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-NOV-1996 (TrEMBLrel. 01, Last sequence update) 01-NOV-1999 (TrEMBLrel. 12, Last annotation update) ACIDIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
                                                                                  S VPLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQH 122
ö
                                                 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 264; DB 4;
Pred. No. 1.76e-35;
1; Mismatches 0
                                                    32 LPL-GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDOH 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQH 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60 AA; 6697 MW; 6CCC7DFF CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ¥.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1C932B1D CRC32;
  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Transplantation 56:1177-1182(1993).
EMBL; S67234; AAB29059.1; -.
HSSP; P05230; 2AXM.
PFAM; PF00167; FGF; 1.
NON_TER 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-NOV-1996 (TrEMBLrel. 01, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Transplantation 56:1177-1182(1993)
  2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    59 AA; 6595 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Match 16.6%;
Local Similarity 97.2%;
tes 35; Conservative
  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HSSP; P05230; ZAXM.
PFAM; PF00167; FGF; 1.
NON_TER 60 60
SEQUENCE 60 AA; 669
                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A. MEDLINE; 92202857.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
```

Ŋ

```
61 YSSDVFTPECKFKESVFENYYVYSSTLYRQQESGRAWFLGLNKEGQIMKGNRVKKTKPS 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2 LF-SQQGYFLQMHPDGTIDGTKDENSDYTLFNLIPVGLRVVAIQGVKASLYVAMNGEGYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ouery Match 15.8%; Score 251; DB 4; Length 127; Best Local Similarity 34.6%; Pred. No. 1.64e-32; Matches 44; Conservative 30; Mismatches 48; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Search completed: Tue Aug 29 15:39:15 2000 Job time : 61 secs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       127 127
127 AA; 14478 MW;
                                                                                                                                                                                                          PRELIMINARY;
                                                                                                                                                                                                                                                                                                               Homo sapiens (Human).
                                                                                                                   196 SHFVPKPI 203
                                                                                                                                                211 ILFLPLPV 218
                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121 SHFVPKP 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           211 ILFLPLP 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                         LT 15
099517
099517;
                                                                                                                                                                                                                                                                                               FGF12
                                                         g
G
                                                                                                                  g
                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              요
                               ö
                                                                                      ò
                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                              ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Archosauria; Aves;
Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        71 KRLRRLYCNVGIGFHLQVLPDGRIHGMHSES-RYSLLEISPVERGVVCMFGVQSGLFLAM 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          149 DIDGILYGSQTPNEECLFLERLEENHYNTYISKRHAEKNWFVGLKKNGSCKRGPRTHYGQ 208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                130 NSKGRLFGSKYFSDECKFREMLLPNNYNAYESWRYPGM--YIALSKNGRAKKGNKVSPTM 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             [1]
SEQUENCE FROM N.A.
MEDLINE; 99065510.
MUNOZ-SANJOAN I., SIMANDL B.K., FALLON J.F., NATHANS J.;
"Expression of chicken fibroblast growth factor homologous factor (FHF): 1 and of differentially spliced isoforms of FHF-2 during development and involvement of FHF-2 in chicken limb development."; Development 126:409-421(1999).
EMBL; AF108754; AAD21575.1; --
PROSITE; PS00247; HBGF_EGF; 1.
PROSITE; PS00247; HBGF_EGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                         01-MAY-1999 (TrEMBLrel. 10, Created)
01-MAY-1999 (TrEMBLrel. 10, Last sequence update)
01-MAY-1999 (TrEMBLrel. 10, Last sequence update)
01-NOV-1999 (TrEMBLASI GROWTH FACTOR-4.
NOTOPITAL PIBROBLASI GROWTH FACTOR-4.
NOTOPITALMUS VIridescens (Eastern newt) (Triturus viridescens).
Eukaryota; Merazoa; Chordata; Craniata; Vertebrata; Amphibia;
Batrachia; Caudata; Salamandroidea; Salamandridae; Notophthalmus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .,
2
                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                               Length 196;
 Length 60;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                              Indels
                                                                                                                                                                                                                                                                                [1]
SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
"Putative Newt Fibroblast Growth Factor-4.";
Submitted (OCT-1996) to the EMBL/GenBank/DDBJ databases.
EMBL; U76998; AAC98812.1;
HSSP; P09038; 1BFF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              O9W6A1 PRELIMINARY; PRT; 243 AA. 09W6A1. 249W6A1. 01.NOV-1999 (TrEMBLrel. 12, Last sequence update) 01.NOV-1999 (TrEMBLrel. 12, Last sequence update) 01.NOV-1999 (TrEMBLrel. 12, Last annotation update) FIBROBLAST GROWTH FACTOR 12 ISOFORM A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 257; DB 13; L
Pred. No. 7.05e-34;
31; Mismatches 48;
Score 265; DB 4; Le
Pred. No. 1.04e-35;
2; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                            Score 260; DB 13; I
Pred. No. 1.46e-34;
31; Mismatches 48;
                                                                       21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHTD 58
                                                                                                                                                                                                                                                                                                                                                                                   PROSITE; PS00247; HBGF_FGF; 1.
SEQUENCE 196 AA; 22033 MW; 455E08A3 CRC32;
                                                                                                                                               196 AA
                                                                                                                                                PRT;
16.6%;
larity 92.1%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                              / Match 16.3%;
Local Similarity 34.6%;
nes 44; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 16.1%;
Best Local Similarity 34.4%;
Matches 44; Conservative
                                                                                                                                                PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gallus gallus (Chicken).
             Local Similarity
nes 35; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          188 TVTHFLP 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     209 KAILFLP 215
   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                               T 13
09YH31
                                                                                                                                                              09YH31;
               Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Loc
Matches
                                                                                                                                 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
                                                                                                                                                SC SE DI PI
                                                                                                                                                                                                                                                                                                             셤
                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
```

3,

.,

10E2842D CRC32;

```
LF-SQQEYFLQMHPDGTIDGTKDENSDYTLFNLIPVGLRVVAIQGVKAGLYVAMNAEGYL 135
                                                                                                 136 YSSDVFTPECKFFKESVFENYYVIYSSTLYRQQESGRAWFLGLNKEGQIMKGNRVKKTKPS 195
                                Ž.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COULIER F., PONTAROTI P., ROUBIN R., HARTUNG H., GOLDFARB I BIRNBAUM D.;
J. MOI. Evol. 0:0-0(0).
EMBL: 270276; CAA94240.1; -.
HSSP: P03968; 1AFC.
PROSITE: PS00247; HBGF_FGF; 1.
PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                  01-MAY-1997 (TrEMBLrel. 03, Created)
01-MAY-1997 (TrEMBLrel. 03, Last sequence update)
01-MOY-1999 (TrEMBLrel. 12, Last annotation update)
FIBROBLAST GROWTH FACTOR 12 (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                   127 AA.
                                                                                                                                                                                                                                                                                                                                                                   PRT;
11
```

. gradient of the second of the . J.

*****	(TM)	******
*****	, <u>-</u>	******
***		****
*****	<u> </u>	******
*****		******
*******		*******
化基础存储 医多种多种 化多种 医多种 医多种 医多种 医多种 医多种 医多种 医多种 医多种 医多种 医		*************************************
******		******
******		*******
*		*

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

protein - protein database search, using Smith-Waterman algorithm MPsrch\_pp

Tue Aug 29 15:52:44 2000; MasPar time 7.52 Seconds 629.670 Million cell updates/sec : uo u

abular output not generated.

>US-09-121-017B-17 (I-200) from US09121017B.pep 1442 I MAPARLFALLIFFVGGVAES......PRTHYGQKAILFLPLPVSSD 200 Title: Description: Perfect Score: Sequence:

PAM 150 Gap 11 Scoring table:

188963 segs, 23686106 residues Searched:

Minimum Match 0% Listing first 45 summaries Post-processing:

Database:

a-geneseg36 1.genesegp

Mean 31.783; Variance 131.440; scale 0.242 Statistics:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Ses	Result		% Ouery	>				
Ġ	Š.	Score	Matc	Match Length DB	8	£	Description	Pred. No.
	7	985	68	3 154	н	W92283	Human beta-endothelial	2.04e-86
	7	982	. 89	3 154		W75414	Human beta-endothelial	2.04e-86
	m	982	98	3 154		W06816	Human endothelial cell	2.04e-86
	4	985	. 89	3 154	Н	W04805	Human beta-endothelial	2.04e-86
	Ŋ	985	89	3 155	-	W75415	Human endothelial cell	2.04e-86.
	φ	985	68	3 155	ч	W75711	Fibroblast growth fact	2.04e-86
	7	985	89		Н	R80776	Fibroblast growth fact	2.04e-86
	œ	985	98		-	P70482	Sequence encoded by co	2.04e-86
	σ	985	. 89			P94037	Human acidic fibroblas	2.04e-86
	10	985	98		1	W53022	Fibroblast growth fact	2.04e-86
	11	985	98		-	R70812	FGF-1.	2.04e-86
	12	985	68		٦	W92291	Human endothelial cell	2.04e-86
	13	982	68.3	3 165	-	R05785	Human DECGF encoded by	2.04e-86
	14	982	. 89		-	W06818	Human endothelial celî	2.04e-86
	15	983	. 68		-	W75413	Human alpha-endothelia	3.26e-86
	16	983	89		-	W92282	Human alpha-endothelia	3.26e-86
	11	983	. 89	2 134	٦	W04807	Human alpha-endothelia	3.26e-86
	18	984	89		-	W04806	Human acidic fibroblas	2.58e-86
	19	984	68.	2 140	-	R74647	Human recombinant aFGF	2.58e-86
	20	984	98			R34497	Human acidic Fibroblas	2.58e-86
	71	984	68.2	2 140	-	P70995	Sequence of human prot	2.58e-86
	22	984	68.2	-	٦	R25914	Human acidic fibroblas	
	23	984	68.	2 140	1	P90068	Human acid fibroblast	2.58e-86

t de a

5

12 TEKFNLP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV 68

g ò g ö

7

Gaps

. .

129

a ò

```
W03999) having
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SS SDDFELSGSGDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            69 YIKSTETGQYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKN 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Insolated, purified, biologically active bovine beta endothelial cell growth factor— useful to regenerate or treat damaged blood vessels bisclosure; Fig 8: 28pp; English.

Bovine beta-endothelial cell growth factor (beta-ECGF; W03999) having a mol.wt. of 20 kD can be purified at least 16300 fold from bovine brain using heparin-Sepharose affinity chromatography. ECGF is potential for, among other purposes, diagnostic applications and has potential in the treatment of damaged blood vessels or other endothelial cell-lined structures.

Human ECGF (137503) or fragments may be obtained using oil gonucleotides (137504 and 137508 to 737509) whose design is based on the sequence of bovine alpha- and beta-ECGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12 TEKFNLP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV 68
                                                                                                                               Glaim 1. Column 16: 22pp; English.

Human recombinant endothelial cell growth factors (ECGF) beta

(W06816) and alpha (W06817) differ only at their N-terminal ends.

(W06816) and alpha (W06817) differ only at their N-terminal ends.

They can be produced in transformed prokaryotic or eukaryotic host
cells using DNA sequences (T45983 and T45984, respectively) derived

from the complete human ECGF cDNA (T45885). Large quantities of
the ECGFs are produced by culturing the host cells and recovering
the proteins. ECGFs have utility in the growth and amplification
of endothelial cells in culture. They can potentially be used to
treat damaged blood vessels and other endothelial cell-lined
structures, and also have diagnostic appins.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         29-DEC-1996 (first entry)

Human beta-endothelial cell growth factor.

Endothelial cell growth factor; ECGF; blood vessel; regeneration;

heparin-Sepharose affinity chromatography; probe; oligonucleotide;

RGF; fibroblast growth factor.

Home sapiens.
                                                                               Recombinant human endothelial cell growth factors · for treating damaged blood vessels, etc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 985; DB 1; Length 154; Pred. No. 2.04e-86;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 985; DB 1; I
Pred. No. 2.04e-86;
5; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
  Jaye M, Maciag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (RHON ) RHONE POULENC RORER PHARM INC.
Burgess W, Maciag T;
WPI; 96-412132/41.
N-PSDB; T37503.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          175 GSCKRGPRTHYGQKAILFLPLPVSSD 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            129 GSCKRGPRTHYGQKAILFLPLPVSSD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       T 4
W04805 standard; Protein; 154 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      68.3%;
llarity 93.8%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Match 68.3%;
Local Similarity 93.8%;
Les 137; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          03-MAR-1986; US-835594.
18-DEC-1987; US-134499.
29-APR-1991; US-693079.
27-NOV-1991; US-799859.
03-NOV-1994; US-334884.
  Drohan WN,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
Matches 137; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  03-MAR-1986; 835594
                                                     N-PSDB; T45983.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cell growth factor polypeptides.

Claim 1; Column 16; 23pp; English.

This sequence represents the amino acid sequence of the mature human beta-endothelial cell growth factor (b-ECGF). This amino acid sequence is identical to the alpha-ECGF but the beta sequence contains an extra 20 N-terminal amino acids. The sequence was isolated from a human brain stem cell cDNA library using a probe designed based on fragments of the bovine ECGF (see W75416-W75418). The ECGF protein can be used in compositions for promoting wound healing. ECGF is also used to grow sequence 154 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                69 YIKSTETGQYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKN 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                115 YIKSTETGQYLAMDIDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKN 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12 TEKFULP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               - containing endothelial
                                                                                                                                                                                                                        02-MAR-1999 (first entry)
Human beta-endochelial cell growth factor.
Human: endothelial cell growth factor; ECGF: brain stem; probe;
hybridisation; bovine; wound healing; prosthetic device.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   17-MAR-1997 (first entry)
Human endothelial cell growth factor-beta.
Endothelial cell growth factor-beta, ECGF-beta.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 985; DB 1;
Pred. No. 2.04e-86;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Compositions for promoting wound healing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 07-JUN-1995; US-472964.
(RHON ) RHONE POULENC RORER PHARM INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (RHON ) RHONE-POULENC RORER PHARM INC
Burgess W, Drohan WN, Jaye M, Maciag '
WPI; 98-594032/50.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           175 GSCKRGPRTHYGOKAILFLPLPVSSD 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             129 GSCKRGPRTHYGQKAILFLPLPVSSD 154
                                                     175 GSCKRGPRTHYGOKAILFLPLPVSSD 200
                                                                                                                               RESULT 2

My5414 standard; protein; 154 AA. AC. W75414; by 75414; by 102 - Muman: endothelial cell growth fa Human: endothelial cell growth fa Homos sapiens.

PR 04-NOV-1996; by 74351.

PR 04-NOV-1996; US-743561.

PR 04-NOV-1996; US-743561.

PR 03-MAR-1986; US-134499.

R 18-DEC-1987; US-134499.

R 27-NOV-1991; US-793859.

PR 07-JUN-1991; US-793859.

R 27-NOV-1991; US-793859.

PR 07-JUN-1995; US-773484.

PR 07-JUN-1995; US-773484.

PR 07-JUN-1995; US-773489.

PR 07-JUN-1995; US-773884.

PR 07-JUN-1995; US-773884.

PR 07-JUN-1995; US-773884.

PR 07-JUN-1991; US-7798859.

CO-100-1991; US-7798859.

CO-100-1991; US-779889.

CC alim 1; Column 16; 23pp; English CC is identical to the alpha-ECGF beta-endothelial cell growth fact coll growth fact compositions to promoting wound compositions on a prosthelic device.

Sequence 154 AA;
                                                                                                                                                                           Ż
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            r 3
W06816 standard; Protein; 154 AA.
GSCKRGPRTHYGQKAILFLPLPVSSD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 68.3%;
Best Local Similarity 93.8%;
Matches 137; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              03-MAR-1986; 835594.
03-MAR-1986; US-835594
18-DEC-1987; US-134499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              29-APR-1991; US-693079
27-NOV-1991; US-799859
03-NOV-1994; US-334884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens.
USS571790-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    07-JUN-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    05-NOV-1996
```

සු

à

d

ö

Gaps

э; Э

유 ò g ò g

ð

```
130 GSCKRGPRTHYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11-SEP-1998.
03-MAR-1998; J00878.
                                                                                                                                                                                                                                  Misc_difference 100
                                                                                                                                                                                                                                                                                                            Misc_difference 102
                                                                                                                                                                                                                                                                                                                                                             Misc_difference 107
                                                                                                                                                                                                                                                                                                                                                                                                                                       Misc_difference 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      human; therapy.
                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             137;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                         W75711;
                                                                             T 6
W75711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                            셤
                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 This sequence represents the complete amino acid sequence of the human endothelial cell growth factor (ECGF). The protein is further processed alpha-ECGF (starting from Ala at position 2; W75414) and alpha-ECGF (starting from the Asn at position 22; W75413). When the beta-ECGF is cleaved with trypsin, the resulting N-terminal sequence is similar to the N-terminal sequence of acidic fibroblast growth factor (a FGF). The sequence was isolated from a human brain stem cell cDNA library using a probe designed based on fragments of the bowine ECGF (see W75416). The ECGF protein can be used in compositions for promoting wound healing. ECGF is also used to grow cells on a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3
           YIKSTETGQYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKN 128
                                                                                        115 YIKSTETGOYLAMDTDGLLYGSOTPNEECLFLERLEENHYNTYISKRHARKNWFYGLKKN 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SS SDDFELSGSGDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   70 YIKSTETGQYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKN 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   115 YIKSTETGYLAMDTDGLLYGSQTPNEECLFLEENHYNTYISKKHAEKNWFVGLKKN 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13 TEKFNLP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                     /note= "sequence of human fibroblast growth factor is homologous to the protein whose sequence starts at this position"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     for promoting wound healing - containing endothelial
                                                                                                                                                                                                                                                                                              probe;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ë
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note= "corresponds to alpha-ECGF (W75413)"
                                                                                                                                                                                                                                                                                                                                                          /note= "corresponds to beta-ECGF (W75414)" Misc_difference 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 155;
                                                                                                                                                                                                                                                                          Human endothelial cell growth factor precursor protein.
Human; endothelial cell growth factor; ECGF; brain stem;
hybridisation; bovine; wound healing; prosthetic device.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 985; DB 1; Ler
Pred. No. 2.04e-86;
5; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (RHON ) RHONE-POULENC RORER PHARM INC.
Burgess W, Drohan WN, Jaye M, Maciag T
WPI; 98-594032/50.
                                                                                                                                                      175 GSCKRGPRTHYGQKAILFLPLPVSSD 200
                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                    129 GSCKRGPRTHYGQKAILFLPLPVSSD 154
                                                                                                                                                                                                                JT 5
W75415 standard; Protein; 155 AA.
W75415;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N-PSDB; V34350.
Compositions for promoting wound cell growth factor polypeptides Example; F1g 8; 23pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Match 68.3%;
Local Similarity 93.8%;
les 137; Conservative
                                                                                                                                                                                                                                                          02-MAR-1999 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                    .155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-693079.
US-799859.
US-334884.
US-472964.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-835594
                                                                                                                                                                                                                                                                                                                                                                                                                                                    22.
                                                                                                                                                                                                                                                                                                                                                      Misc_difference 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                prosthetic device
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               18-DEC-1987; t
29-APR-1991; t
27-NOV-1991; t
                                                                                                                                                                                                                                                                                                                             Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                04-NOV-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            03-NOV-1994;
07-JUN-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  04-NOV-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                03-MAR-1986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Loca
Matches
```

THE LEFT TO DESCRIPTION OF THE PROPERTY OF THE

888888888888

셤 ö 윱

```
70 YIKSTETGQYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKN 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           115 YIKSTETGOYLAMDIDGLLYGSQIPNEECLFLERLEENHYNTYISKKHARKNWFVGLKKN 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                       "Glu-102 may be replaced by another amino acid (Claim 7), preferably Ala, Gly or Ser"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 replacement of the Cys residues to reduce aggregation. The mutein is obtained by site-specific or site-directed mutagenesis of FGF-1 DNA, incorporation of the mutated DNA into a vector and expression in host cells. The FGF muteins are used to treat heparin-related disorders, such as excessive bleeding induced by heparin, ophthalmic disorders and heparin-associated thrombocytopenia and thrombosis. They may also be used for drug design.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13 TEKFNLP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDOHIOLOLSAESVGEV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "Asn-107 may be replaced by another amino acid (Claim 2), preferably Ala, Phe, Ser, Gly, Met, Leu or Tyr, especially Ala, Gly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "Asn-110 may be replaced by another amino acid (Claim 1), preferably Ala, Phe, Ser, Gly, Met, Leu or Tyr, especially Ala, Gly or Ser.
                                                                                                                                            07-DEC-1998 (first entry)
Fibroblast growth factor-1.
Fibroblast growth factor-1; FGF-1; mutein; protein engineering; heparin; thrombosis; thromocytopenia; ophthalmic disorder;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3;
                                                                                                                                                                                                                                                                                                                           /note- "Phe-100 is replaced by another amino a acid (Claim 3), preferably Ala, Phe, 5 Gly, Met, Leu or Tyr, especially Ala,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 985; DB 1; Pred. No. 2.04e-86;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5; Mismatches
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         130 GSCKRGPRTHYGQKAILFLPLPVSSD 155
                                                                                                            Ź
                                                                                                                                                                                                                                                                                                                                                                                                  or Ser"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             or Ser
                                                                                                         standard; Protein; 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    68.3%;
larity 93.8%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                            /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
```

ŏ

```
115 YIKSTETGQYLAMDIDGLLYGSQIPNEECLFLERLEENHYNIYISKKHAEKNWFVGLKKN 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SS SDDFELSGSGDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         70 YIKSTETGQYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKN 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Human endothelial cell growth factor - produced by recombinant DNA techniques, useful for wound healing Example: Ftg 8: 43pp; English.

Example: Ftg 8: 43pp; English.

To screen the human brain stem cDNA library for clones contg. ECGF inserts, a specific oligonucleotide was designed. This oligonucleotide was based upon a partial AA sequence analysis of the amino terminus of ECGF (see F70480 and F70481). Fig 3s sets bovine alpha and beta ECGF (P70834). The two clones that were isolated, ECGF clones 1 and 29, were analysed in further detail. The nucleotide sequence of these clones and the AA sequence deduced from the nucleot acid sequence is shown in Fig 8 (see N70788 and P70482). Sequence 155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13 TEKFNLP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 985; DB 1; Length 155
Pred. No. 2.04e-86;
5; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Recombinant DNA encoding new fibroblast growth factor analogues - useful eg for accelerating wound healing and to control neovascularisation.
Disclosure; P. English.
See also P94038.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 985; DB 1; 1
Pred. No. 2.04e-86;
5; Mismatches 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Jaye M, Burgess W, Maciag T, Drohan W;
WPI; 87-264128/37.
N-PSDB; N70788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               25-JUN-1990 (first entry)
Human acidic fibroblast growth factor.
Acidic fibroblast growth factor.
/label= Beta ECGF
16. .21
/label= Acidic FGF
22. .158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               175 GSCKRGPRTHYGQKAILFLPLPVSSD 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      130 GSCKRGPRTHYGQKAILFLPLPVSSD 155
                                                                                                                                     22. 155
/label= Alpha ECGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Fiddes JC, Abraham JA, Protter A;
WPI; 89-009785/02.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               P94037 standard; protein; 155 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ouery Match 68.3%;
Best Local Similarity 93.8%;
Matches 137; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Match 68.3%;
Local Similarity 93.8%;
les 137; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11-JAN-1989.
06-JUL-1988; 306158.
07-JUL-1987; US-070797.
(BIOT-) Biotechn Res Assoc.
                                                                                                                                                                                                                                                                                                                                                                                         (MELO-) MELOY LAB INC.
(RORE ) RORER BIOTECHN INC
                                                                                                                                                                                                                                                                                                                        03-MAR-1986; US-835594.
26-MAR-1987; ES-000812.
                                                                                                                                                                                                                                                                                         000425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RORE-) RORER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N-PSDB; N93088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens.
                                                                                                                                                                                                                                                                                         02-MAR-1987;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BIOTECH INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EP-298723-A.
                                                                                                                                                                                                                 WO8705332-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                    protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     P94037;
                                                                                                                                            protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DAC DATE OF THE PROPERTY OF T
                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Parid JA, Houston LL, Nova MP, Sosnowski BA;
WPI: 95-386820/43:
WPI: 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           70 YIKSTETGQYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKN 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        13 TEKFNLP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV 69
                                                                                                                                                                                                                                                                                                                        Fibroblast growth factor 1, FGF-1.
conjugate; fibroblast growth factor; FGF; cytotoxin; saporin; eye;
cell proliferation; regulation; pterygia; corneal clouding; cancer;
psoriasis; rheumatoid arthritis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13-MAY-1991 (first entry)
Sequence encoded by complete cDNA sequence of human endothelial
cell growth factor (EGGF).
Endothelial cell regeneration; blood vessel regeneration.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ..
m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 985; DB 1; 1
Pred. No. 2.04e-86;
5; Mismatches 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TRIANGE OF THE STATE OF THE STA
                                  GSCKRGPRTHYGQKALLFLPLPVSSD 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               130 GSCKRGPRTHYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .T 8
P70482 standard; Protein; 155 AA.
                                                                                                                                                                                              R80776 standard; Protein; 155 AA R80776;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ouery Match 68.3%;
Best Local Similarity 93.8%;
Matches 137; Conservative
                                                                                                                                                                                                                                                                                      13-MAY-1996 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15-MAR-1995; U03448.
15-MAR-1994; US-213447.
15-MAR-1994; US-213446.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Homo sapiens,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      P70482;
13-MAY-1991
```

ä

3; Gaps

Length 155;

69

.; '

Gaps

'n

1; Indels

protein

Key

ID DT DE DE COS COS FT

ö g δ g ò Length 155;

셤 ö

셤 ò ద ò

```
840088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N-PSDB; X01723.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                03-MAR-1986; U
18-DEC-1987; U
29-APR-1991; U
27-NOV-1991; U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   03-NOV-1994;
07-JUN-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11-APR-1997;
04-NOV-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US5849538-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       W92291;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Loca
Matches
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DOCAMA CONTRACTOR OF THE SERVICE OF 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PR 27-MGG-1995; U15237.

PR 30-AUG-1995; U15237.

PR 30-AUG-1995; U15-237.

PR 30-AUG-1995; U15-237.

PR 30-AUG-1995; U15-237.

PR 30-AUG-1996; U15-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ä
                    saporin; cytostatic; tumor; diabetes; rheumatoid arthritis.
                                                                                                                                                          YIKSTETGOYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKN 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  70 YIKSTETGQYLAMDIDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKN 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     115 YIKSTETGOYLAMDIDGLLYGSQIPNEECLFLEENHYNTYISKKHAEKNWFYGLKKN 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     14-AUG-1998 (first entry)
Fibroblast growth factor protein 1.
FGF: cell growth; survival; differentiation; central nervous system; peripheral nervous tissue; treatment; diagnosis; cell culture.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13 TEKFNLP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ä;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 985; DB 1; Length 155;
Pred. No. 2.04e-86;
5; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note= "Cys may be replaced by Ser"
                                                                                                                                                                                                                                                                                                                         130 GSCKRGPRTHYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 130 GSCKRGPRTHYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                        n 10
W53022 standard; Protein; 155 AA.
W53022;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FGF-1, fibroblast growth factor;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                r 11
R70812 standard; protein; 155 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ouery Match
Best Local Similarity 93.8%;
Matches 137; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-SEP-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_difference 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_difference 31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          05-MAR-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     R70812;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            175
                        13
                                                                                         55
                                                                                                                                                                                                                                                                                                                                                        175
                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
ID WS
AC WS
DT 14
```

a

ò

요 ò 

```
Human endothelial cell growth factor (ECGF) protein sequence. Endothelial cell growth factor; ECGF; cleavable; recombinant; repair; regenerate; blood vessel; endothelial cell; human.
                                                                                                                                                                                                                                                                                                                                                 Disclosure; Page 108-109; 128pp; English.

Novel fusion proteins comprise FGF linked to saporin. FGF-1 to -9
may be used, pref. FGF-1 (R70812), FGF-5 (R70813). FGF-7 (R70814) or
FGF-8 (R70815) muteins, in which at least 1 Cys residue is replaced
by conservative Ser substitutions. The fusion proteins are potent
cytocidal agents to cells bearing the FGF receptor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SS SDDFELSGSGDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              13 TEKFNLP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DNA encoding a cleavable signal peptide and an endothelial cell
growth factor - useful for producing recombinant endothelial cell
growth factor proteins
Disclosure: Fig 8: 23pp; English.
                                                                                       02-AUG-1993; US-099924.
29-OCT-1993; US-145829.
(PRIZ-) PRIZM PHARM INC.
(WHIT-) WHITTIER INST DIABETES & ENDOCRINOLOGY.
Baird AJ, Lappi DA, Sosnowski BA;
WPI; 95-082038/11.
New monogenous preparations of cytotoxic conjugates and DNA -
contain fibroblast growth factors and cytotoxic agents for
treating FGF conditions such as tumours, diabetes and rheumatoid
arthritis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "acidic-FGF begins at this position"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "alph-ECGF begins at this position"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1; Indels
/note= "Cys may be replaced by Ser"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note= "beta-ECGF begins at this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 985; DB 1; 1
Pred. No. 2.04e-86;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (RHON ) RHONE-POULENC RORER PHARM INC.
Burgess W, Drohan WN, Jaye M, Maciag T;
WPI; 99-069734/06.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            175 GSCKRGPRTHYGQKAILFLPLPVSSD 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        W92291 standard; Protein; 155 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    130 GSCKRGPRTHYGQKAILFLPLPVSSD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             68.3%;
93.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20-APR-1999 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity 93.8%;
Les 137; Conservative
  WO9503831-A.
09-FEB-1995.
27-JUL-1994; U08511.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note= "
22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-743261.
US-835594.
US-134499.
US-693079.
US-799859.
US-334884.
US-472964.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11-APR-1997; US-840088
```

3

ö

ဖ

```
factors (ECCE) and plasmids comprising the DNA sequences. The DNA encodes a cleavable signal peptide and an ECCE, where removal of the signal peptide ylelds a mature form of the ECGF, where the ECGF is alpha-ECGF or beta-ECGF. The DNA is used to produce recombinant ECGF proteins, which can be used in treatments to repair or regenerate blood vessels or other structures lined with endothelial cells. The present sequence represents a human ECGF protein (the encoding cDNA determined from lambda ECGF clones 1 and 29).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       74 YIKSTETGQYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKN 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        70 XIKSTETGQYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHARKWFVGLKKN 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         115 YIKSTETGQYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKN 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   17 TEKFULP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIC SAESVGEV 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    13 TEKFNLP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
invention relates to DNA encoding human endothelial cell growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            incorporates useful restriction sites at frequent intervals to incorporates useful restriction sites at frequent intervals to facilitate cassette mutagenesis at selected regions.

Disclosure, Fig 3a: 18pp; English.

The synthetic bECGF gene incorporates useful restriction sites at frequent intervals to facilitate the cassette mutagenesis of selected regions. Also included are flanking sites to simplify the incorporation of the gene into any expression system. becGF is one of the factors involved in the regulation of homeostasis of blood vessels acting in part through effects on endothelial cells. Such factors may also play a role in stages of atheroscierosis and tumour growth and development.
                                                                                                                                                                                                                                                                                                                                                                                                                                                .;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 985; DB 1; Length 165; Pred. No. 2.04e-86;
                                                                                                                                                                                                                                                                                                                                                                            Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     to two stop codons
                                                                                                                                                                                                                                                                                                                                                                            Score 985; DB 1; Length 155 Pred. No. 2.04e-86; 5; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     22-AUG-1990 (first entry)
Human bECGF encoded by synthetic gene.
Beta-endothelial cell growth factor; homeostasis;
atherosclerosis; tumor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note= "sites corresp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 175 GSCKRGPRTHYGQKAILFLPLPVSSD 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Key Location/Qualifiers misc_difference 160. .161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    130 GSCKRGPRTHYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              the DNA sequence"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         standard; Protein; 165 AA.
                                                                                                                                                                                                                                                                                                                                                                            68.3%;
llarity 93.8%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 68.3%;
Best Local Similarity 93.8%;
Matches 137; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (BRBI) Brit Bio-Tech Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  08-AUG-1988; 018777.
08-AUG-1988; GB-018777.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Davies JA, Johnson ID;
WPI; 90-109883/15.
N-PSDB; Q03871.
                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
tes 137; Conser
                                                                                                                                                                                                                                                                                                               155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GB2223497-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11-APR-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        T 13
R05785 s
R05785;
                                                                                                                                                                                                                                                                                                                                                                                                                       Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ID DET CONTRACT OF THE FIT PRINCE PRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              88888888888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
```

```
26 TEKFNLP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Recombinant human endothelial cell growth factors - for treating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  02-MR-1999 (first entry)
Human alpha-endothelial cell growth factor.
Human; endothelial cell growth factor; EGGF; brain stem; probe; hybridisation; bovine; wound healing; prosthetic device.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   damaged blood vessels, etc.

Example D; Fig 8; 22pp; English.

Human endothelial cell growth factor (EGGF) is a mitogen for endothelial cells. Its amino acid sequence was deduced from a cDNA clone (T45985) isolated from a human brain stem library. Recombinant EGGF-beta (W06815) and EGGF-alpha (W06817) can be produced in transformed host cells. They have utility in the growth and amplification of endothelial cells in culture, and optentially be used to treat damaged blood vessels and other endothelial cell-lined structures. They also have diagnostic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 168;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 985; DB 1; I
Pred. No. 2.04e-86;
5; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Drohan WN, Jaye M, Maciag T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (RHON ) RHONE POULENC RORER PHARM INC
                                                                                                                                                                                                                                                              Human endothelial cell growth factor
Endothelial cell growth factor; ECGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                175 GSCKRGPRTHYGQKAILFLPLPVSSD 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     143 GSCKRGPRTHYGQKAILFLPLPVSSD 168
                              175 GSCKRGPRTHYGQKAILFLPLPVSSD 200
                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
134 GSCKRGPRTHYGQKAILFLPLPVSSD 159
                                                                                                                                                                                                                                                                                                                                                                                                                                                35. .168
/label= ECGF-alpha
                                                                                                                                                                                                                                                                                                                                                                                            15. .168
/label= ECGF-beta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .r. 15
W75413 standard; protein; 134 AA.
W75413;
                                                                                                                                                77 14
W06818 standard; Protein; 168 AA.
W06818 (first entry) (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Match 68.3%;
Local Similarity 93.8%;
les 137; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                          .168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               03-MAR-1986; 835594.
03-MAR-1986; 08-835594.
18-DEC-1987; US-134499.
29-APR-1991; US-693079.
27-NOV-1991; US-7998859.
03-NOV-1994; US-34884.
07-JUN-1995; US-472964.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 96-505421/50.
N-PSDB; T45985.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                168 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens.
US5827826-A.
                                                                                                                                                                                                                                                                                                                                  Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US5571790-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         05-NOV-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Burgess W,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                         protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DACKWAM DACKWAW DACKWA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ογ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ó
g
                                                          ò
```

27-OCT-1998. 04-NOV-1996; 743261.

```
Compositions for promoting wound healing - containing endothelial cell growth factor polypeptides

Claim 1; Column 16; 23pp; English.

This sequence represents the amino acid sequence of the mature human alpha endothelial cell growth factor (a-ECGF). The sequence was isolated from a human brain stem cell cDNA library using a probe designed based on fragments of the bovine ECGF (see W75416-W75418). The ECGF protein can be used in compositions for promoting wound healing. ECGF is also used to grow cells on a prosthetic device.
                                   18-DEC-1987; US-134499.
29-APR-1991; US-693079.
27-NOV-1994; US-799859.
03-NOV-1994; US-334884.
07-JUN-1995; US-472964.
(RHON) RHONE-POULENC RORER PHARM INC.
BUTGESS W, DYCHAN NN, Jaye M, Maclag T; WPI; 98-594032/50.
```

1 NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYLA 60 g ò

ö

0; Gaps

Length 134;

Score 983; DB 1; Length 134 Pred. No. 3.26e-86; 0; Mismatches 0; Indels

Ouery Match Best Local Similarity 100.0%; Matches 134; Conservative

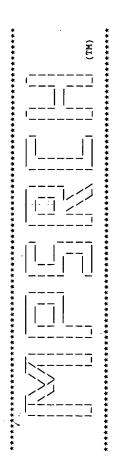
g

ò

121 QKAILFLPLPVSSD 134

g ò

Search completed: Tue Aug 29 15:52:55 2000 Job time : 11 secs.



Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

MPsrch\_pp protein - protein database search, using Smith-Waterman algorithm Tue Aug 29 15:52:11 2000; MasPar time 12.09 Seconds 780.657 Million cell updates/sec :uo u

abular output not generated.

>0S-09-121-017B-17 (1-200) from US09121017B.pep 1442 1 MAPARLFALLLFFVGGVAES.....PRTHYGQRAILFLPLPVSSD 200 Title: Description: Perfect Score: Sequence:

PAM 150 Gap 11 Scoring table:

Searched:

142080 seqs, 47172406 residues

Post-processing: Minimum Match 0% Listing first 45 summaries

pirs4-1:pirl 2:pir2 3:pir3 4:pir4 Database:

Mean 44.238; Variance 77.971; scale 0.567 Statistics: Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

### SUMMARIES

Pesult No.	Score	% Query Match	Length DB	DB	QI	Description	Pred. No.
	286	7,83	155	-	A33665	anidio fibroblast and	5 530-106
1 (7	967	67.1	155		A60721	fibroblast	9.67e-192
m	996	67.0		7	D37360	fibroblast	1.66e-191
4	996	67.0		7	S04147	fibroblast	1.66e-191
S	954	66.2	152	~	JH0476	fibroblast	1.11e-188
ø	917	63.6		-	GKBOA	acidic fibroblast gro	5.63e-180
7	916	63.5		7	A60130	acidic fibroblast gro	9.68e-180
ω	906	62.8		7	JW0055	fiblobrast growth fac	2.16e-177
σ	522	36.2		7	A48834	ъ	1.58e-88
10	516	35.8			S00185	basic fibroblast grow	3.60e-87
11	516	35.8		-	GKBOB	basic fibroblast grow	3.60e-87
12	509	35.3		7	A32398	basic fibroblast grow	1.38e-85
13	508	35.2		~	C37360	basic fibroblast grow	2.32e-85
14	208	35.2	154	7	A31674	basic fibroblast grow	2.32e-85
15	498	34.5		7	S31622	basic fibroblast grow	4.18e-83
16	493	34.2		-	A40117	basic fibroblast grow	5.60e-82
17	466	32.3		~	146711	fibroblast growth fac	6.51e-76
18	455	31.6		~	JC1457	ryudocan precursor -	1.89e-73
19	350	24.3		~	A48137	fibroblast growth fac	2.60e-50
20	350	24.3		~	S66486	fibroblast growth fac	2.60e-50
21	329	22.8	207	~	JC5941	fibroblast growth fac	8.82e-46
22	324	22.5		~	JC5940	fibroblast growth fac	1.04e-44
23	302	20.9	194	~	S49501	keratinocyte growth f	5.11e-40

8.32e-40 2.21e-39	1.55e-38	4.08e-38	4.62e-37	5.77e-35	2.446-34	1.51e-34	1.51e-34	4.33e-33	6.99e-33	1.82e-32	1.82e-32	7.60e-32	1.32e-30	3.40e-30	9.28e-29	6.09e-28	2.57e-26	2.57e-26	4.09e-26	6.52e-26
ryudocan precursor - fibroblast growth fac	keratinocyte growth f	fibroblast growth fac	embryonic fibroblast	transforming protein	embryonic Fibroblast	fibroblast growth fac	fibroblast growth fac	transforming protein	ryudocan precursor -	fibroblast growth fac	fibroblast growth fac	HST protein - bovine	fibroblast growth fac	fibroblast growth fac	fibroblast growth fac	FGF-3 - chicken	basic fibroblast grow	transforming protein	fibroblast growth fac	keratinocyte growth f
A42410 A36301	148610	S26049	S23595	A36207	S54407	150710	S68144	TVHUF5	JC5613	JH0708	JC4627	JC4268	JG0184	TVHUHS	S20102	150588	A32484	539582	S14192	B46289
7 7	N	~	~	~	7	~	~	Н	7	~	~	~	~	Н	~	7	~	Н	~	7
202	194	194	187	264	192	194	266	267	198	09	256	206	168	206	208	220	125	237	208	97
20.9	20.5	20.3	20.0	19.3	19.1	19.1	19.1	18.7	18.6	18.4	18.4	18.2	17.8	17.7	17.2	16.9	16.4	16.4	16.3	16.2
301	295	293	288	278	275	276	276	269	268	266	266	263	257	255	248	244	236	236	235	234
24 25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

### ALIGNMENTS

RESULT 1	
	A33665 #tvpe complete
TITLE	fibr
ALTERNATE_NAMES	beta-ECGF; endothelial cell growth factor beta;
	heparin-binding growth factor 1
ORGANISM	#formal_name Homo sapiens #common_name man
DATE	10.Sep-1999 #sequence_revision 10-Sep-1999 #text_change 10-Sep-1999
ACCESSIONS	A33665; A32316; S18217; A43804; A24662; JH0707; S35535;
	S35536; I39413; A23553; A24820; A24243; A24301; A26386;
	25.55.5
REFERENCE	
#authors	Mergia, A.; Tischer, E.; Graves, D.; Tumolo, A.; Miller, J.; Gospodarowicz, D.; Abraham, T.A.; Shipley, G.D.; Fiddes
	J.C.
#journal	Biochem. Biophys. Res. Commun. (1989) 164:1121-1129
#title	Structural analysis of the gene for human acidic fibroblast
	growth factor.
#cross-retere	nces MUID:90073637
#accession	A33665
##molecule_type DNA	Ltype DNA
##residues	1-155 ##label MER
##CIOSS-re	##cross-references GB:M30491
REFERENCE	A32316
#authors	Wang, W.P.; Lehtoma, K.; Varban, M.L.; Krishnan, I.; Chiu,
	ı.m.
#journal	Mol. Cell. Biol. (1989) 9:2387-2395
#title	Cloning of the gene coding for human class 1 heparin-binding
***************************************	ות דרם בעלובפסוחו זוו וברמו
#CLOSS-LELETE	#CIOSS relegences MOID: 8954595/
#accession	A32316
##molecule_type DNA	
##residues	WAN
##CIOSS-IG	##cross-references GB:M23087; NID:9183875; PIDN:AAA52638.1; PID:9386768
REFERENCE	S18217
#authors	Wang, W.P.; Quick, D.; Balcerzak, S.P.; Needleman, S.W.;
	Chiu, I.M.
#journal	Oncogene (1991) 6:1521-1529
#title	analysis
	growth factor gene and its preservation in leukemia
#cross-refere	#cross-references MUID:92019819
#accession	S18217
##molecule_type DNA	
##residues	#residues 1-155 ##label WAZ
##Cross-re	Ferences EMBL: M23086
REFERENCE	A43804

```
##residues
                                                                                                   " ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #accession
                                                          #accession
                                                                                                                                                                            #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                  #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #journal
                                                                                                                                                        authors
                                                                                                                                                                                                                                                                                                                                                                                                                              #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KEYWORDS
FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16-155
                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENETICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##rcsidues 1.40 ##label RES
##cross-references GB:M60515; NID:9178226; PIDN:AAA51672.1; PID:9553170;
##cross-references GB:M60516; NID:9178232; PID:9553171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #authors Payson, R.A.; Canatan, H.; Chotani, M.A.; Wang, W.P.; Harris, S.E.; Myers, R.L.; Chiu, I.M.
#journal Nucleic Acids Res. (1993) 21:489-495
#title Cloning of two novel forms of human acidic fibroblast growth factor (aFGF) mRNA.
#cross-references MUID:93181239
#accession $35535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #authors Yu, Y.L.; Kha, H.; Golden, J.A.; Migchielsen, A.A.J.; Goetzl, E.J.; Turck, C.W.
#journal J. Exp. Med. (1992) 175:1073-1080
#title An acidic fibroblast growth factor protein generated by alternate splicing acts like an antagonist.
#cross references MUID:92202857
                                                                                                                                                                                                                                                                                                                                                                                                                 #accession A24bbs
##molecule_type mRNA
##residues 1-155 ##label JAX
##cross-references GB:M13361; NID:g181941; PIDN:AAA79245.1; PID:g181942
##CTOSS-references GB:M13361; NID:g181941; PIDN:AAA79245.1; PID:g181942
##DPPNCE JH0707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##molecule_type mRNA
##residues 1-155 ##label YUY
##cross-references GB:X65778; NID:g396163; PIDN:CAA46661.1; PID:g396164
                                                                                                                                              ##molecule_type mRNA
##residues 1-155 ##label CHI
##cross-references EMBL:X31943; NID:g32435; PIDN:CAA36206.1; PID:g32436
##cross-references EMBL:X31943; NID:g32435; PIDN:CAA36206.1; PID:g32436
ENCE A24662
#authors Chiu, I.M.; Wang, W.P.; Lehtoma, K.
#journal Oncogene (1990) 5:755-762
#title Alternative splicing generates two forms of mRNA coding for human heparin-binding growth factor 1.
#cross-references MUID:90265618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ERENCE 139412
#authors Crumley, G.; Dionne, C.A.; Jaye, M.
#journal Blochem. Blophys. Res. Commun. (1990) 171:7-13
#title The gene for human acidic fibroblast growth factor encodes two upstream exons alternatively spliced to the first coding exon.
#cross-references MUID:90365758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A. Biochem. Biophys. Res. Commun. (1986) 138:611-617
The complete amino acid sequence of human brain-derived
                                                                                                                                                                                                                                                                                                                             #title Human endothelial cell growth factor: cloning, nucleotide
    sequence, and chromosome localization.
#cross-references MIID:86261805
#accession A24662
                                                                                                                                                                                                                                                 Jaye, M.; Howk, R.; Burgess, W.; Ricca, G.A.; Chiu, I.M.; Ravera, M.W.; O'Brien, S.J.; Modi, W.S.; Maciag, T.; Drohan, W.N. Science (1986) 233:541-545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #authors Harper, J.W.; Strydom, D.J.; Lobb, R.R. #journal Biochemistry (1986) 25:4097-4103 #cross-references MUID:86296647 #accession A23553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##molecule_type protein
##residues 16-155 ##label HAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##cross-references GB:L01485
##staine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##molecule_type mRNA
##residues 1-58 ##label PA2
##cross-references GB:L01487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A23553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A24820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       I39413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S35535
                                                                                                                            A43804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #accession
                                                                                                                               #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #authors
                                                                                                                                                                                                                                                         #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                             REFERENCE
```

```
#authors Gautschi-Sova, P.; Muller, T.; Bohlen, P. #journal Biochem. Blophys. Res. Commun. (1986) 140:874-880 #ittle Amino acid sequence of human acidic fibroblast growth factor. #cross-references MUID:87048871 #accession A26386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #product fibroblast growth factor 1 #status experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##moolecule_type protein
##residues_
16-155 ##label GA2
##experimental_source brain
sncE
chavan, A.J.; Haley, B.E.; Volkin, D.B.; Marfia, K.E.;
Verticelli, A.M.; Bruner, M.W.; Draper, J.P.; Burke, C.J.;
Naddaugh, C.R.
ournal Blochemistry (1994) 33:7193-7202
itle Interaction of nucleotides with acidic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A. Blochem. Blophys. Res. Commun. (1986) 135-541-548 Human brain-derived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitogenic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         70 YIKSTETGQYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKN 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #label MAT\
#binding_site carbohydrate (Asn) (covalent) #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         13 TEKFNLP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV 69
                                                                                                                                                                                                                                                                                                                                                                                                                                Gautschi, P.; Frater-Schroder, M.; Bohlen, P. FEBS Lett. (1986) 204:203-207 Partial molecular characterization of endothelial cell mitogens from human brain: acidic and basic fibroblast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #superfamily fibroblast growth factor alternative splicing; growth factor; heparin binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #length 155 #molecular-weight 17460 #checksum 9243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1; Indels 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 68.3%; Score 985; DB 1; Length 155; Best Local Similarity 93.8%; Pred. No. 5.53e-196; Matches 137; Conservative 5; Mismatches 1; Indels
acidic fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type protein
##residues 16-30,'X',32-49 ##label GAU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #gene GDB:FGF1; FGFA
##cross-references GDB:119909; OMIM:131220
#map_position 5q31.3-5q33.2
#introns 57/1; 91/3
                                                                        ##molecule_type protein
##residues 16-155 ##label GIM
                                                                                                                                                                                                                                                                                                                             ##experimental_source brain
NCE A91364
                                                                                                                                                                                                                                                                            #cross-references MUID:86186784
#accession A24243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        growth factors. 
cross-references MUID:86275260
                                                                                                                                                                                                                                                                                                                           ##molecule_type protein
                                                                                                                          A90122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A24301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A26386
                                                    A24820
```

ä

#title

```
##molecule_type DNA
                       ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ALTERNATE_NAMES
                                                                                                                                          #introns
CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CLASSIFICATION
                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
#authors
#journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Loca
Matches
                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                        GENETICS
                                                                                                                            #gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
                                                      COMMENT
                                                                                                                                                                         SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ENTRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                               엄
                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                   ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                 A60721 #type complete acidic fibroblast growth factor - golden hamster acidic fibroblast growth factor 1 #formal_name golden hamster #formal_name Mesocricetus auratus #common_name golden hamster 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change A60721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Dev. Biol. (1990) 138:454-463
Isolation of cDNAs encoding four mouse FGF family members and
characterization of their expression patterns during
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##molecule_type_mRNA
##residues 1-155 ##label HEB
##cross-references GB:M30641; NID:g193284; PIDN:AAA37618.1; PID:g309236
                                                                                                                                                                                                                                          #authors Hall, J.A.; Harris, M.A.; Malark, M.; Mansson, P.E.; Zhou,
H.; Harris, S.E.
#journal J. Cell. Biochem. (1990) 43:17-26
#title Characterization of the hamster DDT-1 cell aFGF/HGBF-I gene
and cDNA and its modulation by steroids.
#cross-references MUID:90270291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               M.; Haub, O.; Martin,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          81 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               126 AMDTDGLLXGSQTPNEECLFLERLEENHYNTXISKKHAEKNWFVGLKKNGSCKRGPRTHY 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #formal_name Mus musculus #common_name house mouse
17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change
16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #authors Madiai, F.; Hackshaw, K.V.; Chiu, I.M.
#journal Gene (1996) 179:231-236
#filte Cloning and characterization of the mouse Fgf-1 gene.
#cross-references MUD:97128312
#accession JC5231
                                                                                                                                                                                                                                                                                                                                                                                                                                                       #checksum 9573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ó,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 155;
                                                                                                                                                                                                                                                                                                                                                                 not compared with conceptual translation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      acidic fibroblast growth factor - mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hebert, J.M.; Basilico, C.; Goldfarb,
                                                                                                                                                                                                                                                                                                                                                                                                                                growth factor; heparin binding
#length 155 #molecular-weight 17403
                                                                                                                                                                                                                                                                                                                                                                                                                   #superfamily fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 967; DB 1; Let Pred. No. 9.67e-192; 2; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #type complete
130 GSCKRGPRTHYGQKALLFLPLPVSSD 155
                   175 GSCKRGPRTHYGQKALLFLPLPVSSD 200
                                                                                                                                                                                                                                                                                                                                                                                                 1-155 ##label HAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #cross-references MUID:90201563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      67.1%;
larity 97.0%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      embryogenesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             D37360; JC5231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                141 GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   186 GOKAILFLPLPVSSD 200
                                                                                                                                                                                                                                                                                                                                                                                 ##molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local Similarity
nes 131; Conser
                                                                                                                                                                                                                                                                                                                                           A60721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A37360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      D37360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
TERNATE_NAMES
GANISM
DATE
                                                                                                                                                                                                                                                                                                                                                                                                 ##residues
                                                                                                                                     ALTERNATE_NAMES ORGANISM
                                                                                                                                                                                                                                                                                                                                                                  ##status
                                                                                                                                                                                                                                                                                                                                                                                                                   CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##status
                                                                                                                                                                                                                                                                                                                                               #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #journal
                                                                                                                                                                                                       ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
SUMMARY
                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ENTRY
                                                                                                                                                                         DATE
g
                                  ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
```

```
**residues 1-155 #*label GOO ##cross references EMBL:X14212; NID:956351; PIDN:CAA32448.1; PID:956352 FICATION #superfamily fibroblast growth factor growth factor; heparin binding #length 155 #molecular-waith.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Goodrich, S.P.; Yan, G.C.; Bahrenburg, K.; Mansson, P.E. Nucleic Acids Res. (1989) 17:2867
The nucleotide sequence of rat heparin binding growth factor
                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      acidic fibroblast growth factor - pig (fragment)
#formal_name Sus scrofa domestica #common_name domestic pig
31-Mar-1992 #sequence_revision 31-Mar-1992 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                      66 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 125
                                                                                                                                                                                                                                                                                                                                                                                                                              81 AMDTEGLLYGSQTPNEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  81 AMDTEGLLYGSQTPNEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##cross-references GB:U36456
T This protein is an inducer of neovascularization in anglogenic
disease including atherosclerosis, cancer and inflammatory
                                                                                                                                                                                                                                                                                                                                         80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             80
                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        804147 *type complete acidic fibroblast growth factor 1 - rat heparin-binding growth factor 1 *formal_name Rattus norvegius *common_name Norway rat #formal_name Rattus norvegius *common_name Norway rat 28-Feb-1990 *sequence_revision 28-Feb-1990 *text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                       21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQYL
                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                     57/1; 91/3
#superfamily fibroblast growth factor
#length 155 #molecular-weight 17417 #checksum
                                                                                                                                                                                                                                               Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 155;
                                                                                                                                                                                                                                                                                            2; Indels
                                                                                                                                                                                                                                                 Score 966; DB 2; L. Pred. No. 1.66e-191;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 966; DB 2; L
Pred. No. 1.66e-191;
3; Mismatches 2;
                                                                                                                                                                                                                                                                                            3; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #type fragment
1-155 ##label MAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #cross-references MUID:89240051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                67.0%; s.
larity 96.3%; F.
Conservative
                                                                                                                                                                                                                                             / Match 67.0%;
Local Similarity 96.3%;
nes 130; Conservative
                                                                                       autoimmune disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        141 GQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  186 GQKAILFLPLPVSSD 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      186 GOKAILFLPLPVSSD 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              141 GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity
nes 130; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JH0476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
ORGANISM
DATE
```

```
##residues
                                                                                                                                                                                                              #authors
#submission
                                                                                                         #accession
                                                                                                                                                                                                                                                       #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #accession
                     #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #iournal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Halley, C.; Courtois, Y.; Laurent, M. Nucleic Acids Res. (1988) 16:10913 Nucleotide sequence of bovine acidic fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Renaud, F.; Desset, S.; Bugra, K.; Halley, C.; Philippe, J.M.; Courtois, Y.; Laurent, M. Biochem. Biophys. Res. Commun. (1992) 184:945-952 Heterogeneity of 3' untranslated region of bovine acidic FGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Alterio, J.; Halley, C.; Brou, C.; Soussi, T.; Courtois, Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GKBOA #type complete acidic fibroblast growth factor precursor - bovine aFGF; eye-derived growth factor II; heparin-binding growth
                                                                                                                                                                                 ##modecule_type mRNA
##residues 1-152 ##label SCH
##cross-references EMBL:X60317; NID:g1873; PIDN:CAA42869.1; PID:g1874
##experimental_source heart norm residues are packed around the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              70 YIKSTETGQYLAMDTSGLLYGSQTPSEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKN 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               115 YIKSTETGOYLAMDTDGLLYGSOTPNEECLFLERLEENHYNTYISKRHAEKNWFVGLKKN 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10613; S02102; S02661; S22065; B24663; A94281; S03953;
A91010; A24477; B25043; C25043; A25043; A24539; A60884;
A37892; B37892; A61198; 146024; A34477; A01385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##residues 1-155 ##label HAL
##cross-references EMBL:X13221; NID:g347; PIDN:CAA31610.1; PID;g348
S02661
                                                                                                                                                                                                                                                                    the hydrophobic core residues are packed around the internal symmetry axis protein belongs to the fibroblast growth factor family. #superfamily fibroblast growth factor growth factor; heparin binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13 TEKFNLP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                factor I; prostatropin
#formal_name Bos primigenius taurus #common_name cattle
13 Aug-1986 #sequence_revision 03-Feb-1994 #text_change
                                                        #authors Schmidt, M.; Sharma, H.S.; Schott, R.J.; Schaper, W. Biochem. Biophys. Res. Commun. (1991) 180:853-859 #title Amplification and sequencing of mRNA encoding acidic fibroblast growth factor (aFGF) from porcine heart.#cross-references MIDE:92062117 #accession JH0476
                                                                                                                                                                                                                                                                                                                                                                                                 #region nuclear location signal\
#binding_site heparin (Lys) #status predicted
#length 152 #checksum 1124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .,
.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 152;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 954; DB 2; Le
Pred. No. 1.11e-188;
6; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #accession JH0613
##molecule_type DNA
##residues 58-155 ##label REN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        130 GSCKRGPRTHYGQKAILFLPLPV 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #cross-references MUID:92246990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #cross-references MUID:89083506
#accession S02102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  66.2%;
llarity 91.6%;
Conservative
                   JH0476; S20072
JH0476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18-Jun-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            transcripts
16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S02102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            131;
                                                                                                                                                                                                                                                                                                                COMMENT This
CLASSIFICATION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #authors
#journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CESSIONS
                     ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                  EATURE
22-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
DATE
                                                                                                                                                                                                                                                                                                                                                                                                                     133
SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ENTRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
```

```
#authors Abraham, J.A.; Mergia, A.; Whang, J.L.; Tumolo, A.; Friedman, J.; Hjerrild, K.A.; Gospodarowicz, D.; Fiddes, J.C.
#journal science (1986) 233:545-548
#title Nucleotide sequence of a bovine clone encoding the anglogenic protein, basic fibroblast growth factor.
#cross-references MUID:86261806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gimenez-Gallego, G.; Rodkey, J.; Bennett, C.; Rios-Candelore, M.; Disalvo, J.; Thomas, K. Science (1985) 230:1386-1388 Brain-derived acidic fibroblast growth factor: complete amino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Crabb, J.W.; Armes, L.G.; Carr, S.A.; Johnson, C.M.; Roberts, G.D.; Bordoll, R.S.; McKeehan, W.L.
Blochemistry (1986) 25:4988-4993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Quinkler, W.; Maasberg, M.; Bernotat-Danielowski, S.; Luethe, N.; Sharma, H.S.; Schaper, W. Bur. J. Biochem. (1989) 181:67-73 Isolation of heparin-binding growth factors from bowine,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #authors Burgess, W.H.; Mehlman, T.; Marshak, D.R.; Fraser, B.A.;
Maciag, T.
#journal Proc. Natl. Acad. Sci. U.S.A. (1986) 83;7216-7220
#title Structural evidence that endothelial cell growth factor is the precursor of both endothelial cell growth factor alpha and acidic fibroblast growth factor #cross-references MUID:87016918
                  #title Characterization of a bovine acidic FGF cDNA clone and its expression in brain and retina. #cross-references MUID:89078619
                                                                                                                                                                                                                                                                                                                                                               ##residues 1-18 ##label PHI
##cross-references EMBL:X66446; NID:g4ll; PIDN:CAA47063.1; PID:g4l2
NCE A94290
                                                                                                                                                                                    ##cross-references EMBL:X14032; NID:q322; PIDN:CAA32192.1; PID:g323
NCE S22065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #authors Bohlen, P.; Esch, F.; Baird, A.; Gospodarowicz, D.
#journal EMBO J. (1985) 4:1951-1956
#title Acidic fibroblast growth factor (FGF) from bovine brain:
amino-terminal sequence and comparison with basic FMF.
#cross-references MUID:86055750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #title Complete primary structure of prostatropin, a prostate epithelial cell growth factor.
                                                                                                                                                                                                                                                            Philippe, J.M.
submitted to the EMBL Data Library, May 1992
S22065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##molecule_type protein
##residues 16-30,'X',32-34,'X',36-44 ##label
BNCE A24477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    acid sequence and homologies.
#cross-references MUID:86070224
#accession A94281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type protein
##residues
2,'GE',5-155 ##label CRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               porcine and canine hearts.
FEBS Lett. (1988) 242:41-46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type mRNA
##residues 62-102 ##label ABR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##molecule_type protein
##residues 16-155 ##label GIM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##molecule_type protein
##residues 16-45 ##label QUI
                                                                                                                                               ##molecule_type mRNA
##residues 1-155 ##label
                                                                                                                                                                                                                                                                                                                                                            ##molecule_type mRNA
##residues 1-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A91010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   803953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A91010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A94127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A94281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   803953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A24477
                                                                                                                      S02661
```

```
S02639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A60130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S02639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ALTERNATE_NAMES
ORGANISM
                                                                                                                                                   #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #authors
#journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                          COMMENT
                                                                                                                                                                                                                                                                                                                                                                                             COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                  COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #authors Kuo, M.D.; Huang, S.S.; Huang, J.S.
#journal J. Biol. Chem. (1990) 265:16455-16463
#title Acidic fibroblast growth factor receptor purified from bovine liver is a novel protein tyrosine kinase.
#cross-references MUID:90375514
#accession A37892
                                                                                                                                               16-155 ##label BU2
this form was designated acidic fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Disalvo, J.
J. Protein Chem. (1987) 6:163-171
Primary structure and mitogenic and anglogenic activities of brain-derived acidic fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Desset, S.; Laurent, M.; Mallet,
                                                                                                                                                                                                                                                              growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hill, C.E.; Belford, D.A.; Godovac-Zimmermann, J.; Hendry, I.A.
Brain Res. Dev. Brain Res. (1991) 63:13-19
Class I heparin binding growth factor promotes the differentiation but not the survival of cillary neurones
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 62-76, XX, 78-86 ##label KUO
this sequence is an amino-terminal fragment of a form
designated as brain-derived growth factor B
                                    \hat{\mathbf{2}}\text{-}155 ##label BUR this form was designated beta endothelial cell growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##molecule_type protein
##molecule_type protein
##residues 22-30,'X',32-38 ##label KU2
##note this form was designated brain-derived growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##molecule_type protein
##residues 11-26;28-50;53-110,'H',112,'NTY';134-155 ##label HIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Philippe, J.M.; Renaud, F.; Desset, S.; Laurent, M.; Mall
J.; Courtois, Y.; Edwards, J.B.
Blochem. Biophys. Res. Commun. (1992) 188:843-850
Cloning of two different 5' untranslated exons of bovine
acidic fibroblast growth factor by the single strand
ligation to single-stranded cDNA methodology.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##residues 1-18 ##label PH2
##cross-references EMBL:X66446; NID:g411; PIDN:CAA47063.1; PID:g412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sasaki, H.; Hoshi, H.; Hong, Y.M.; Suzuki, T.; Kato, T.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Thomas, K.A.; Gimenez-Gallego, G.; Rios-Candelore, M.;
                                                                                                                                                                                                                                                              cell
                                                                                                                                                                                                                                                                                                                         #authors Strydom, D.J.; Harper, J.W.; Lobb, R.R.
#journal Blochemistry (1986) 25:945-951
#title .Amino acid sequence of bovine brain derived class heparin-binding growth factor.
#cross-references WUID:86187766
                                                                                                                                                                                                                                   22-155 ##label BU3
this form was designated alpha endothelial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type protein
##residues 16-155 ##label STR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##molecule_type protein
##residues 16-155 ##label THO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #cross-references MuID:93075172
#accession 146024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #cross-references MUID:92164087
#accession A61198
                                                                                                                                                                                                                                                                                factor
                                                                                    factor
             ##molecule_type protein
##residues 2-155 ##
                                                                                                                          ##molecule_type protein
                                                                                                                                                                                                                   ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##molecule_type protein
##residues 62-76,')
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##molecule_type mRNA
                                                                                                                                                                                        A25043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0717
                                                                                                      C25043
                                                                                                                                                                                                                                                                                                     A24539
                                                                                                                                                                                                                                                                                                                                                                                                                                    A24539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A60884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A60884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##residues
                                                                                                                                                   ##residues
                                                                                                                                                                                                                                     ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##status
                                                                                                                                                                                            #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #accession
*accession
                                                                                                        #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                      #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #accession
                                                             ##note
                                                                                                                                                                        ##note
                                                                                                                                                                                                                                                                                                REFERENCE
#authors
#journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tauthors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        # journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
```

```
#authors Risau, W.; Gautschi-Sova, P.; Boehlen, P.
#journal EMBO J. (1988) 7:959-962
#title Endothelial cell growth factors in embryonic and adult chick
brain are related to human acidic fibroblast growth factor.
#cross-references MUID:88296438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##residues 1-155 ##label SCH ##cross-references GB:S63263; NID:9234372; PIDN:AAB19629.1; PID:9234373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
             Onodera, M.; Saito, T.; Aoyaqi, S.
#journal J. Biol. Chem. (1989) 264:17606-17612
#title Purification of acidic fibroblast growth factor from bovine
#cross-references MulD:90008933
#accession A34477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      81 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKHWFVGLKKNGRSKLGPRTHF 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         21 GNYKKPKLLYCSNGGYFLRILPDGTVDGTKDRSDQHIQLQLCAESIGEVYIKSTETGQFL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                acidic fibrobiast growth factor - chicken endothelial cell growth factor #formal_name Gallus gallus #common.name chicken 03-Mar-1993 #sequence_revision 03-Mar-1993 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
Sasaki, H.; Saito, M.; Youki, H.; Karube, K.; Konno,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Schnuerch, H.; Risau, W.
Development (1991) 111:1143-1154
Differentiating and mature neurons express the acidic
fibroblast growth factor gene during chick neural
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##molecule_type protein
##residues 22-30,'x',32-44,'x',46-48 ##label RIS
[FICATION #superfamily fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 917; DB 1; L
Pred. No. 5.63e-180;
6; Mismatches 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #type complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Note: remainder of annotations omitted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #cross-references MUID: 91347925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##molecule_type mRNA
##residues
                                                                                                                                             preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 63.6%;
Best Local Similarity 91.9%;
Matches 124; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16-Jul-1999
A60130; S02639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        186 GQKAILFLPLPVSSD 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  141 GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  developmen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##residues
CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KEYWORDS
```

Query Match

SUMMARY

Matches

21

81

ò g ò q

ò

```
##residues_____ 95-128 ##label MIT
##cross-references EMBL:X56804; NID:962855; PIDN:CAA40139.1; PID:962856
FICATION #superfamily fibroblast growth factor #corportamily fibroblast growth factor
Y #Length 189 #mclecular-weight 20312 #checksum 8538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Primary structure of ovine pituitary basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S00185
Simpson, R.J.; Moritz, R.L.; Lloyd, C.J.; Fabri, L.J.; Nice,
S.C.; Rubira, M.R.; Burgess, A.W.
FEBS Lett. (1987) 224:128-132
                                                                                                                                                                          S23636 Mitrani, E.; Gruenbaum, Y.; Shohat, H.; Ziv, T.
Mitrani, E.; Gruenbaum, Y.; Shohat, H.; Ziv, T.
Development (1990) 109:387-393
Fibroblast growth factor during mesoderm induction in the early chick embryo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    66 ANYKKPKILYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    66 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVXIKSTETGQYL 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             118 AMKEDGRILLALKCATEECFFFERLESNNYNTYRSRKYSD - WYVALKRTGQYKPGPKTGP 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       58 GHFKDPKRLYCKNGGFFLRINPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVSANRFL 117
                                                                                                                                  sequence extracted from NCBI backbone (NCBIN:131000, NCBIP:131001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #common_name domestic sheep
10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change
10-Sep-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S00185 #type complete
basic fibroblast growth factor - sheep
prostatropia #prostatropia #formal_name Ovis orientalis aries, Ovis ammon aries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #region heparin binding #status predicted\
#region heparin binding #status predicted
#length 146 #molecular-weight 16434 #checksum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 516; DB 1; Length 146
Pred. No. 3.60e-87;
22; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             23; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     growth factor; heparin binding; mitogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##molecule_type protein
##residues 1-146 ##label SIM
FICATION #superfamily fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 522; DB 2; 1
Pred. No. 1.58e-88;
                                                                                        BOR
                                          ##status preliminary
##molecule_type nucleic acid
##residues 1-189 ##label
                                                                                                             ##experimental_source embryo
teross-references MUID:93246053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          *cross-references MUID:88055577
                                                                                                                                                                                                                                                                                            #cross-references MUID:90382254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      35.8%;
larity 55.2%;
Conservative
                                                                                                                                                                                                                                                                                                                                         preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 36.2%;
Best Local Similarity 54.5%;
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        176 GOKAILFLPMSAKS 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GOKAILFLPLPVSS 199
                                                                                                                                                                                                                                                                                                                                                              ##molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity
Matches 74; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S00185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S00185
                     A48834
                                                                                                                                                                                                                                                                                                                                                                                                                               CLASSIFICATION
SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                           #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CLASSIFICATION
                                                                                                                                                                                                                                                                                                                    #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #accession
                         #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10
                                                                                                                                                                                                        authors
                                                                                                                                                                                                                           journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       107-110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSIONS
                                                                                                                                                                                                                                                title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #title
                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ά
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #journal Biochem. Biophys. Res. Commun. (1998) 246:182-191
#title Primary structure of ovine fibroblast growth factor-1 deduced
#cross-references WUID:98262939
                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sidues 1-155 ##label GRI
This protein is a potent mitogenic factor for NIH 3T3 fibroblasts
in the absence of heparin.
IION #superfamily fibroblast growth factor
#length 155 #molecular-weight 17557 #checksum 8890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Borja, A.Z.; Meijers, C.; Zeller, R.
Bor. 1801. (1993) 157:110-118
Expression of alternatively spliced bFGF first coding exons
and antisense mRNAs during chicken embryogenesis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Grieb, T.W.; Ring, M.; Brown, E.; Palmer, C.; Belle, N.;
Donjerkovic, D.; Chang, H.; Yun, J.; Subramanian, R.;
Forozan, F.; Guo, Y.; Vertes, A.; Winkles, J.A.; Burgess,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AMDINGLLYGSQLPGEECLFLERLEENHYNTYISKKHADKNWFVGLKKNGNSKLGPRTHY 140
                                                                                                                                                                                                                                                126 AMDIDGLLYGSQIPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              81 AMDINGLLYGSQIPSEECLFLERLEENHYNTYISKKHAEKNWFIGLKKNGSSKLGPRIHF 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     80
                                                                                                                                  GNYKKPKLLYCSNGGHFLRILPDGKVDGTRDRSDQHIQLQLSAEDVGEVYIKSTASGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A48834 #type complete
basic fibroblast growth factor - chicken
#formal_name Gallus gallus #common_name chicken
01-Dec-1993 #sequence_revision 18-Nov-1994 #text_change
16-Jul-1999
                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                               JW0055 #type complete
fiblobrast growth factor-1 - sheep
FGF-1
FGF-1
17-Jun-1998 #sequence_revision 10-Jul-1998 #text_change
07-May-1999
JW0055
JW0055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21 GNYKKPKILYCSNGGYFLRILPDGRVDGTKDRSDQHIQLQLYAESIGEVYIKSTETGQFL
#checksum 7617
                                                                                        ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                          Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 155;
                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
#length 155 #molecular-weight 17322
                                       Score 916; DB 2; L. Pred. No. 9.68e-180; 6; Mismatches 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 906; DB 2; Lour Pred. No. 2.16e-177; 8; Mismatches 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               62.8%; ilarity 90.4%; I
                                          63.5%;
larity 90.4%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A48834; S23636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GOKALLFLPLPVSSD 200
                                                                                                                                                                                                                                                                                                                                         141 GOKAILFLPLPVSAD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    141 GQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
Matches 122; Conserv
                                                                 Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A48834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CLASSIFICATION
SUMMARY
```

#accession

ACCESSIONS REFERENCE #authors

ORGANISM

œ

SULT

Length 146;

#authors #journal

#title

ACCESSIONS REFERENCE

ORGANISM DATE

186

쉱

ò

g

RESULT ENTRY

ä

;

Length 189;

```
#accession
                                                                                                                                                                                                                                                                                                                                                                                                                         tcontents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #journal
#title
                               #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #authors
                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                   Abraham, J.A.; Mergia, A.; Whang, J.L.; Tumolo, A.; Friedman, J.; Hjerrild, K.A.; Gospodarowicz, D.; Fiddes, J.C. Science (1986) 233:545-548
Nucleotide sequence of a bovine clone encoding the anglogenic protein, basic fibroblast growth factor.
                                                                                                                                                                                                                              GKBOB #type fragment
basic fibroblast growth factor precursor - bovine (fragment)
bFGF; kidney-derived growth factor; prostatropin
bFGF; kidney-derived growth factor; prostatropin
and primigenius taurus #common_name cattle
13-Aug-1986 #sequence_revision 02-Jun-1995 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##molecule_type mRNA
##residues 3-157 ##label ABR
##cross-references GB:M13440; NID:g163049; PIDN:AAA30518.1; PID:g163050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Milner, P.G.; Li, Y.S.; Hoffman, R.M.; Kodner, C.M.; Siegel, N.R.; Deuel, T.F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #authors Bertolini, J.; Hearn, M.T.W.
#journal Mol. Cell. Endocrinol. (1987) 51:187-199
#title Isolation. characterisation and tissue localisation of an
N-terminal-truncated variant of fibroblast growth factor.
#cross-references MUID:87247652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #authors Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R. #journal Mol. Cell. Endocrinol. (1987) 49:189-194
#title Isolation and partial characterization of basic fibroblast growth factor from bovine testis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Fiddes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            J.C. Cold Spring Harb. Symp. Quant. Biol. (1986) 51:657-668 Human basic fibroblast growth factor: nucleotide sequence, genomic organization, and expression in mammalian cells.nces MUID:87217066
  75 AMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGPKTGP 132
                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               this form appears to be identical to the renal form
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Biochem. Biophys. Res. Commun. (1989) 165:1096-1103
A novel 17 kD heparin-binding growth factor (HBGF-8) in
bovine uterus: purification and N-terminal amino acid
                                                                                                                                                                                                                                                                                                                                                                     A24663; A32878; A33784; A61550; A61551; A60310; A61094;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1-14 ##label MIL
demonstration of a possible alternative initiator
                                                                                                                                                                                                                                                                                                                                                                                          A01386; A60316; A22054; A24819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #cross-references
#accession A61551
##molecule_type protein
##molecule_type protein
27-35,'X',37-41 ##label UE3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##experimental_source pituitary gland
NCE A90924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             splice junction
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##molecule_type protein
##residues 16-35 ##label BER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3-157 ##label AB2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cross-references MUID:86261806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sequence.
#cross-references MUID:90121211
#accession A33784
                                                                                                                                                                                                                                                                                                                                               10-Sep-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##molecule_type protein
                                                                                           133 GQKAILFLPMSAKS 146
                                                                                                                                   186 GOKAILFLPLPVSS 199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A61550
                                                                                                                                                                                                                                                                                                                                                                                                                  A94290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A33784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A61550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A24663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A61551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     *cross-references
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##residues
##note
                                                                                                                                                                                                                                                      TITLE
ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             *accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #journal #title
                                                                                                                                                                                                         11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                        #authors
                                                                                                                                                                                                                                                                                                                                                                     ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                         RESULT
윱
                                             ö
                                                                                           윱
                                                                                                                                        ò
```

```
*Journal Proc. Natl. Acad. Sci. U.S.A. (1985) 82:6507-6511
#title Primary structure of bovine pituitary basic fibroblast growth factor (FEF) and comparison with the amino-terminal sequence of bovine brain acidic FMF.
#ccession A01386
##mo? A01386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #authors Baird, A.; Esch, F.; Boehlen, P.; Ling, N.; Gospodarowicz, D. #journal Regul. (1985) 12:201-213
#title Isolation and partial characterization of an endothelial cell growth factor from the bovine kidney: homology with basic fibroblast growth factor.
#cross-references WID:86095426
#accession A60316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #authors Bohlen, P.; Baird, A.; Esch, F.; Ling, N.; Gospodarowicz, D.
#journal Proc. Natl. Acad. Sci. U.S.A. (1984) 81:5364-5368
#title Isolation and partial molecular characterization of pituitary fibroblast growth factor.
#cross-references WUID:84298139
#accession A22054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gospodarowicz, D.; Baird, A.; Cheng, J.; Lui, G.M.; Esch, F.;
Bohlen, P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Esch, F.; Baird, A.; Ling, N.; Geno, N.; Hill, F.; Denoroy, L.; Klepper, R.; Gospodarowicz, D.; Bohlen, P.; Guillemin,
                                           #journal Regul. Person (1986) 16:135-145
#title Purification and partial characterization of a mitogenic factor from bovine liver: structural homology with basic #bross-references MUD:87119165
#accession A60310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The acidic and basic libroblast growth factors are the major endothelial cell growth factors. Both are angiogenic agents in vivo and are potent mitogens for a variety of mesoderm-derived cell types in vitro (although bFGF is 30-100 times more potent than aFGF in stimulating the proliferation of normal diploid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #journal Endocrinology (1986) 118:82-90
#title Isolation of fibroblast growth factor from bovine adrenal
gland: physicochemical and biological characterization.
#cross-references MUID:86081530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          the amino end of this form was blocked; the peptide composition matched what was thought to be the signal
                                                                                                                                                                                                                                                                                                                                                                                      #authors Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R. #journal Biochem. Blophys. Res. Commun. (1986) 138:580-588 #iiile Isolation of an amino terminal extended form of basic fibroblast growth factor.
          S.; Ling,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            This protein binds heparin more strongly than does aFGF
Ueno, N.; Baird, A.; Esch, F.; Shimasaki,
Guillemin, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##molecule_type protein
##residues 12-25,27-35,'X',37-40 ##label GOS
##experimental_source adrenal gland
NGE A01386
                                                                                                                                                                                                                                                   ##molecule_type protein
##residues 23-35,'X',37-42 ##label UEN
##experimental_source liver
ENCE A24819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##experimental_source kidney
A22054
Flors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##molecule_type protein
##residues 12-157 ##label ESC
##experimental_source pituitary gland
NNCE A60316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type protein
##residues . 12-26 ##label BOH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              seguence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A61094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A61094
```

```
#accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
#authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #journal
                                                                                                                                                                                                                                                                                                                                                                                              #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
       REFERENCE
                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                           #product basic fibroblast growth factor, uterine form
#status predicted #label MATI\
#product basic fibroblast growth factor, pituitary gamma
form #status experimental #label MATS\
form #status experimental #label MATS\
form #status experimental #label MATS\
#product basic fibroblast growth factor, pituitary alpha
form #status predicted #label MATA\
#product basic fibroblast growth factor, pituitary short
form #status predicted #label MATA\
#product basic fibroblast growth factor, hepatic form
#status experimental #label MATS\
#status experimental #label MATS\
#status experimental #label MATS\
#status product basic fibroblast growth factor, renal form
#status experimental #label MATS\
#status quammal fibroblast growth factor, renal form
#status product basic fibroblast growth factor, product form
#status fibroblast growth factor, product form
#status fibroblast growth factor, fibroblast growth factor, form
#status fibroblast growth factor, form
#status fibroblast fibroblast growth factor, fibroblast growth factor, fibroblas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               form - human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##residues 1-210 ##label PRA
##cross-references GB:J04513; NID:g183083; PIDN:AAA52531.1; PID:g459811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #authors Prats, H.; Kaghad, M.; Prats, A.C.; Klagsbrun, M.; Lelias, J.M.; Liauzun, P.; Chalon, P.; Tauber, J.P.; Amalric, F.; Smith, J.A.; Caput, D. H.; Caput, D. Broc. Natl. Acad. Sci. U.S.A. (1989) 86:1836-1840 High molecular mass forms of basic fibroblast growth factor are initiated by alternative CUG codons.

#Cross-references MUID:89184522
#accession A32398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1-114 ##label SHI
authors translated the codon GGA for residue 47 as Ala
#superfamily fibroblast growth factor
alternative splicing; anglogenesis; growth factor; heparin
binding; mitogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A32398 #type complete basic fibroblast growth factor precursor, 22.5K form - hum bFGF; fibroblast growth factor 2; prostatic growth factor;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #authors Shibata, F.; Baird, A.; Florkiewicz, R.Z.
#journal Growth Factors (1991) 4:277-287
#fille Functional characterization of the human basic fibroblast
growth factor gene promoter.
#cross-references MuD:92110035
#accession A61537
##molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             86 AMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGPKTGP 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A32398; A61537; A26642; B32878; S00297; A54316; B54316; A33624; A25824; B24243; B24301; S42242; B55784; I52267;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 26 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          basic fibroblast growth factor, 18K form
#formal_name Homo sapiens #common_name man
31.Jul-1989 #sequence_revision 31-Dec-1993 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 1; Length 157;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pred. No. 3.60e-87;
22; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        experimental
#length 157 #checksum 1115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 516;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity 55.2%;
Matches 74: Contract
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    prostatropin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  144 GOKAILFLPMSAKS 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    186 GOKALLFLPLPVSS 199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     29-33,118-121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
ALTERNATE_NAMES
CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                 12-157
                                                                                                                                                                                                                                                                                                                                                      16-157
                                                                                                                                                                                                                                                                                                                                                                                                                       23-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             27-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CONTAINS
ORGANISM
                                KEYWORDS
                                                                                                                                   1-157
                                                                                                                                                                                                           4-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MMARY
                                                                                                  FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δý
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
```

```
Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Friedman, J.; Gospodarowicz, D.; Fiddes, J.C.
BMBO J. (1986) 5:2523-258
Human basic fibroblast growth factor: nucleotide sequence and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  L.C.; Barr, P.J.; Baird, A. J. Cell Biol. (1989) 109:3105-3114
Differential effects of heparin, fibronectin, and laminin on the phosphorylation of basic fibroblast growth factor by protein kinase C and the catalytic subunit of protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Feige, J.J.; Bradley, J.D.; Fryburg, K.; Farris, J.; Cousens,
                                                                                                                                                                        ##molecule_type mRNA
##residues 56-210 ##label KUR
##cross-references GB:M27968; NID:9182562; PIDN:AAA52448.1; PID:9182563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1-155 ##label AB2 the codon GAA for residue 108 as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #authors Shimoyama, Y.; Gotoh, M.; Ino, Y.; Sakamoto, M.; Kato, K.; #luthors Shimoyama, Y.; Gotoh, M.; Ino, Y.; Sakamoto, M.; Kato, K.; #journal Jpn. J. Cancer Res. (1991) 82:1263-1270 Characterization of high-molecular-mass forms of basic fibroblast growth factor produced by hepatocellular carcinoma cells: possible involvement of basic fibroblast growth factor in hepatocarcinogenesis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S.C.; Lawson, R.K.
Blochem. Blophys. Res. Commun. (1987) 142:702-709
Amino-terminal sequence of a large form of basic fibroblast
growth factor isolated from human benign prostatic
hyperplastic tissue.
                                                                                                                                                                                                                                                                                           Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Fiddes,
                                                                                                                                                                                                                                                                                                                                              #journal Cold Spring Harb. Symp. Quant. Biol. (1986) 51:657-668
#title Human basic fibroblast growth factor: nucleotide sequence.
genomic organization, and expression in mammalian cells.
#cross-references WIDD:87217066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       the authors translated the codon GAA for residue 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##molecule_type protein / xxx, 19, x, 21-29 ##label SH2 / xxx, 19, 7x, 21-29 ##note (NCBIP:71594) ##note
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Story, M.T.; Esch, F.; Shimasaki, S.; Sasse, J.; Jacobs,
#authors Kurokawa, T.; Sasada, R.; Iwane, M.; Igarashi, K. #journal FEBS Lett. (1987) 213:189-194
#title Cloning and expression of cDNA encoding human basic #ibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##molecule_type DNA
##residues 1-155 ##label """
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##status preliminary
##molecule_type protein
##residues 57-210 ##label FEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##molecule_type mRNA
##residues 56-210 ##label ABR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       genomic organization.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #cross-references MUID:87053817
#accession S00297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #cross-references MUID:90078343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              G1y
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   kinase A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      500297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A54316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A25824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B32878
                                                                                                                                                   A26642
                                                                                                                                                                                                                                                                 A90924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A33624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##residues
```

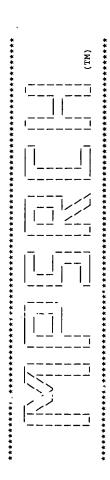
.

```
#accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                      71-174
                                                                                                                                                                                                                                                                                                                                    65-210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #title
                                                                                                                                                                                                                                                                  FEATURE
1-210
                                                                                                                                                                                                                                                                                                                                                                                82-86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                           SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ENTRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                G.M.; Thomas, E.J.
Blochem. Blophys. Res. Commun. (1992) 187:1227-1231
Reverse transcription with nested polymerase chain reaction
shows expression of basic fibroblast growth factor
transcripts in human granulosa and cumulus cells from in
vitro fertilisation patients.
                                                                                                                             Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A. Blochem. Blophys. Res. Commun. (1986) 135:441-548
Human brain-derived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitogenic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #authors Patry, V.; Bugler, B.; Amalric, F.; Prome, J.C.; Prats, H. #journal FEBS Lett. (1994) 349:23-28 ** Purification and characterization of the 210-amino acid recombinant basic fibroblast growth factor form (FGF-2).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pantoliano, M.W.; Horlick, R.A.; Springer, B.A.; Van Dyk, D.E.; Tobery, T.; Wetmore, D.R.; Lear, J.D.; Nahapetian, A.T.; Bradley, J.D.; Sisk, W.P.
Biochemistry (1994) 33:10229-10248
Multivalent ligand-receptor binding interactions in the fibroblast growth factor system produce a cooperative growth factor and heparin mechanism for receptor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Watson, R.; Anthony, F.; Pickett, M.; Lambden, P.; Masson,
                                                                                                                                                                                                                                                                                                                                                                         Gautschi, P.; Frater-Schroder, M.; Bohlen, P. FEBS Lett. (1986) 204:203-207 Partial molecular characterization of endothelial cell mitogens from human brain: acidic and basic fibroblast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #authors Sommer, A.; Brewer, M.T.; Thompson, R.C.; Moscatelli, I. Presta, M.; Rifkin, D.B.
#journal Blochem. Blophys. Res. Commun. (1987) 144:543-550
#title A form of human basic fibroblast growth factor with an excremed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##status preliminary
##molecule_type mRNA
##residues 54.210 ##label SOM
##cross-references EMBL:M1759; NID:g183086; PIDN:AAA52534.1;
PID:g183087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #cross-references MUID:86275260
#accession B24301
##molecule_type protein
##residues
65-88,'x',90-98,'x',100 ##label GAU
                                                                                                                                                                                                                                                                  ##experimental source brain A91364 # A91364 ## A91364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##cross-references GB:S47380; NID:9256535
##experimental_source granulosa cells
NNCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         95-182 ##label RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##molecule_type protein
##residues 54.71 ##label PAN
                                      ##molecule_type protein
##residues 57-77 ##label STO
                                                                                    ##experimental_source prostate
                                                                                                                                                                                                                activities.
*cross-references MUID:86186784
*accession B24243
#cross-references MUID:87155686
#accession A25824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #cross-references MUID:93038590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #cross-references MUID:94347757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  growth factors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    dimerization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##status prel:
##molecule_type mRNA
##residues 95-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S42242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           152267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S42242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             152267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #accession
                                                                                                                                                    #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                #journal
#title
                                                                                                                                                                                                                                                                                                                                                                           #authors
                                                                                                                                  #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           # journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      _
```

```
members and
                                                                                                                                                                                                         *superfamily fibroblast growth factor alternative initiators; angiogenesis; growth factor; heparin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##molecule_type mRNA
##residues 1-154 ##label HEB
##cross-references GB:M30644; NID:q193296; PIDN:AAA37621.1; PID:g309239
CLASSIFICATION #superfamily fibroblast growth factor
SUMMARY #length 154 #molecular-weight 17153 #checksum 2906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A37360
Hebert, J.M.; Basilico, C.; Goldfarb, M.; Haub, O.; Martin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                79 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           66 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  139 AMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYT -- SWYVALKRTGQYKLGSKTGP 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               66 ANYKKPKLLYCSNGGHFLRILDPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          83 AMKEDGRLLASKCVTEECFFFERLESNNYNTYRSRKYS--SWYVALKRTGOYKLGSKTGP 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #product basic fibroblast growth factor, 22.5k form
#status predicted #label MA2\
#product basic fibroblast growth factor, 18k form
#status predicted #label MAT\
#region heparin binding #status predicted\
#region heparin binding #status predicted
#length 210 #molecular-weight 22623 #checksum 3610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 23 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYL 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C37360 #type complete
basic fibroblast growth factor - mouse
#formal_name Mus musculus #common_name house mouse
17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change
16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Dev. Biol. (1990) 138:454-463
Isolation of CDNAs encoding four mouse FGF family membe
characterization of their expression patterns during
                                                 recombinant gene expressed in Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 2; Length 210;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 508; DB 2; Length 154;
Pred. No. 2.32e-85;
23; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pred. No. 1.38e-85;
23; Mismatches 36; Indels
                                 GDB:FGF2; FGFB
##cross-references GDB:119910; OMIM:134920
#map_position 4q25-4q27
#start_codon CTG
CLASSIFICATION #s:nrcf
##molecule_type protein
##residues 39-53;65-88 ##label PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 35.3%; Score 509; Best Local Similarity 54.5%; Pred. No. 1 Matches 73; Conservative 23; Mismat
                                                                                                                                                                                                                                                                   binding; mitogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          embryogenesis.
#cross-references MUID:90201563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 35.2%;
Best Local Similarity 54.5%;
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           197 GOKAILFLPMSAKS 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         C37360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##status
```

```
#description
                                                                                                                                                                                                                                                                                                                                                           CLASSIFICATION
SUMMARY
                                                                                                                                                                               $submission #
                                                                                                                                                                                                                                                #accession
                                                                                                                                                        #authors
                                                                                                               ACCESSIONS
                                                                                                                                   REFERENCE
                                           ORGANISM
TITLE
                                                                   DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                          Shimasaki, S.; Emoto, N.; Koba, A.; Mercado, M.; Shibata, F.; Cooksey, K.; Baird, A.; Ling, N. Biochem. Biophys. Res. Commun. (1988) 157:256-263 Complementary DNA cloning and sequencing of rat ovarian basic fibroblast growth factor and tissue distribution study of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #authors El-Husseini, A.E.D.; Paterson, J.A.; Myal, Y.; Shiu, R.P.C. #journal Biochim. Biophys. Acta (1992) 1131:314-316 . #title PCR detection of the rat brain basic fibroblast growth factor (bFGF) mRNA containing a unique 3' untranslated region. #cross-references MUID:92329546
                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##accession A31b/4
##accession A31b/4
##molecule_type mRNA
##molecule_type mRNA
##cross-references GB:M22427; NID:g204285; PIDN:AAA41210.1; PID:g204286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##status preliminary; translation not shown ##status preliminary; translation not shown ##molecule_type mRNA ##residues 35-15 ##lebel ELH ##stossidues msh.x61697; NID:956143; PIDN:CAA43863.1; PID:956144 ##CTATION #superfamily fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 66 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Kurokawa, T.; Seno, M.; Igarashi, K.
Nucleic Acids Res. (1988) 16:5201
Nucleotide sequence of rat basic fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              83 AMKEDGRLLASKCVTEECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGSKTGP 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      23 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYL 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                  #formal_name Rattus norvegicus #common_name Norway rat
21-May-1990 #sequence_revision 21-May-1990 #text_change
16-Jul-1999 #31674; S00876; S24309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #domain signal sequence #status predicted #label
#product basic fibroblast growth factor #status
predicted #label MAT
#length 154 #molecular-weight 17139 #checksum 3026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5
                                                                                                                                   A31674 #type complete
basic fibroblast growth factor precursor - rat
bbasic fibroblast growth factor precursor - rat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            23; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 508; DB 2; 1
Pred. No. 2.32e-85;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #type fragment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #cross-references MUID:88262516
#accession S00876
                                                                                                                                                                                                                                                                                                                                                                                                                                                #cross-references MUID:89061721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity 54.5%;
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   141 GOKAILFLPMSAKS 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               186 GOKAILFLPLPVSS 199
    141 GOKAILFLPMSAKS 154
                                                                                                                                                                                                                                                                                                                                                                                                                           its mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S31622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        $24309
                                                                                                                                                                                                                                                                                            A31674
                                                                                                                                                                             ALTERNATE_NAMES ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
#authors
                                                                                                                                                                                                                                                                                                                 #authors
                                                                                                               14
                                                                                                                                                                                                                                                                                                                                                             #journal
                                                                                                                                                                                                                                                                     ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             10-154
                                                                                                                                                                                                                                                                                                                                                                                  #title
                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
ENTRY
                                                                                                               RESULT
                                                                                                                                                             TITLE
                                                                                                                                                                                                                         DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
  8
                                              ò
```

```
Rusewitt, D.F.; Sabourin, C.L.K.; Budge, C.L.; Ley, R.D. submitted to the EMBL Data Library, September 1992 Characterization of CDNA encoding basic fibroblast growth factor of the marsuplal Monodelphis domestica.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        66 ANYKKPKILYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVXIKSTETGQYL 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 93 AMKEDGRLLALKYVTEECFFFERLESNNYNTYRSRKYS--NWYVALKRTGQYKLGSKTGP 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   33 GHFKDPKRLYCKNGGFFLRIHPDGRVDGIREKSDPNIKLQLQAEERGVVSIKGVCANRYL 92
                 //wonodelphis domestica) (fragment)
#formal_name Monodelphis domestica
20-Feb-1995 #sequence_revision 20-Feb-1995 #text_change
1.2-Apr-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 164;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    37; Indels
                                                                                                                                                                                                                                                                                                                                                       ##cross-references EMBL:215154
FICATION #superfamily fibroblast growth factor
X #length 164 #checksum 5156
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 498; DB 2;
Pred. No. 4.18e-83;
22; Mismatches 37
growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Search completed: Tue Aug 29 15:52:27 2000 Job time: 16 secs.
                                                                                                                                                                                                                                                                                                                                 1-164 ##label KUS
                                                                                                                                                                                                                                                                        ##molecule_type DNA
##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity 54.5%;
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               151 GOKAILFLPMSAKS 164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            186 GOKAILFLPLPVSS 199
                                                                                                                                                                                                                                                                 531622
                                                                                                                                                 S31622
                                                                                                                    S31622
```



Relea. 9 3.1A John F. Collins, Biocomputing Research Unit. Copyr: itt (c) 1993-1998 University of Edinburgh, U.K. Distribution rigits by Oxford Molecular Ltd

MPsrch\_pp prot in - protein datahase search, using Smith-Waterman algorithm

Cue Aug 29 15:49:0% 2000; MasPar time 7.81 Seconds 793.887 Million cell updates/sec bular output not generated. on:

.JS-09-121-017B-17

. 42 1 MAPARLFALLLFFVGGVAES.....PRTHYGQKAILFLPLPVSSD 200 Description: Perfect Score: Sequence:

Ръм 150 Gap 11 Scoring table:

85561 seqs, 30989116 residues Searched:

Post-processing: Minimum Match 0\$ Listing first 45 summaries

sv..ss-prot38 Database:

Me.n 45.057; Variance 70.010; scale 0.644 Statistics:

Pred. No. is -he number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derive. by analysis of the total score distribution.

## SUMMARIES

Pred. No.	4.07e-222	2.61e-217	4.82e-217	7.69e-214	5.59e-204	1.03e-203	2.08e-100	7.16e-99	7.16e-99	4.42e-97	7.97e-97	7.97e-97	2.85e-94	5.38e-93	3.94e-86	2.40e-83	1.25e-59	3.57e-57	3.57e-57	3.57e-57	4.71e-52	7.68e-51	1.53e-45
	GROWTH	URSOR (	FACTOR		FACTOR	FACTOR	GROWTH FACT	TH FACT	OWTH FA														
Description	HEPARIN-BINDING	SYNDECAN-4 PRECURSOR	GLIA-ACTIVATING	GLIA-ACTIVATING	GLIA-ACTIVATING	GLIA-ACTIVATING	FIBROBLAST GROW	FIBROBLAST GROWTH	KERATINOCYTE GROWTH														
А	FGF1_HUMAN	FGF1_MESAU	FGF1_MOUSE	FGF1_PIG	FGF1_BOVIN	FGF1_CHICK	FGF2_CHICK	FGF2_SHEEP	FGF2_BOVIN	FGF2_HUMAN	FGF2_MOUSE	FGF2_RAT	FGF2_MONDO	FGF2_XENLA	FGF2_RABIT	SDC4_HUMAN	FGF9_XENLA	FGF9_MOUSE	FGF9_HUMAN	FGF9_RAT	FGFG_HUMAN	FGFG_RAT	FGF7_SHEEP
BB	H	-	٦	-	-	-		H	Н	<del></del> 1	-	Н	-	-	-	Н	Н	Н	-	-	-	Н	7
Length DB	155	155	155	152	155	155	158	155	155	155	154	154	156	155	137	198	209	208	208	208	207	207	194
% Query Match	68.3	67.1	67.0	66.2	63.6	63.5	36.2	35.8	35.8	35.3	35.2	35.2	34.5	34.2	•	31.6	•	24.3		24.3		22.5	20.9
Score	985	967	996	954	917	916	522	516	516	509	208	208	498	493	466	455	360	350	350	350	329	324	302
Posult No.	)	7	m	4	5	9	7	8	σ	10	11	12	13	14	15	16	17	18	19	20	21	22	23

[5] SEQUENCE FROM N.A.

RP RP

2.65e-45	7.99e-45	7.21e-44	3.34e-42	7.80e-40	1.34e-39	1.34e-39	3.98e-39	2.31e-39	2.31e-39	6.84e-39	1.18e-38	1.18e-38	3.47e-38	1.02e-37	1.76e-37	5.17e-37	5.17e-37	2.60e-36	6.51e-35	1.11e - 34	1.90e-34
SOR (	TH FA	TH FA	FACT	FACT	FACT		FACT	FACT			FACT		TH FA	FACT	SOR (	FACT	FACT		FACT	FACT	FACT
PRECUR	E GROW	E GROW	GROWTH	E GROW	GROWTH	PRECURSOR	GROWTH	GROWTH	GROWTH	GROWTH	GROWTH	GROWTH									
SYNDECAN-4 PRECURSOR	KERATINOCYTE GROWTH	KERATINOCYTE GROWTH FA	FIBROBLAST	KERATINOCYTE GROWTH	FIBROBLAST	SYNDECAN-4	FIBROBLAST	FIBRC 3LAST	FIBRG MLAST	FIBRC : LAST	FIBRC : LAST	FIBRC, MLAST									
SDC4_RAT	FGF7_HUMAN	FGF7_MOUSE	FGFA_XENLA	FGF5_MOUSE	FGFA_HUMAN	FGFA_RAT	FGFB_XENLA	FGF4_CHICK	FGF5_RAT	FGFE_MOUSE	FGFA_MOUSE	FGFE_HUMAN	FGF7_RAT	FGF5_HUMAN	SDC4_MOUSE	FGF4_BOVIN	FGF3_BRARE	FGFB_HUMAN	FGFB_MOUSE	FGFC_HUMAN	FGF4_HUMAN
П	Н	_	Н	Н	Н	Н	Ч	ч	Ч	П	٦	٦	_	_	ч	Н	П	٦	Ч	٦	٦
202	194	194	187	264	208	215	192	194	266	247	209	247	194	268	198	206	256	225	225	243	206
20.9	20.7	20.5	20.0	19.3	19.2	19.2	19.1	19.	19.	19.0	18.9	18.9	18.3	18.7	18.6	18.4	18.4	18.2	17.8	17.8	17.7
301	299	295	288	278	277	277	275	276	276	274	273	273	271	269	268	366	366	263	257	256	255
24	25	56	27	28	53	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

## ALIGNMENTS

SOUL	RN [3] RC TISSUE-BRAIN STEM; RX MEDLINE; 90265618. RX Ghiu I.M., Wang W.P., Lehtoma K.; RT "Alternative splicing generates two forms of mRNA coding for human RT heparin-binding growth factor 1."; RT Oncogene 5:755-762(1990). RN [4]	
------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--

human acidic fibroblast

```
MEDLINE: 86275260.
MEDLINE: 86275260.
Gautschi P., Frater-Schroeder M., Boehlen P.,
"Partial molecular characterization of endothelial cell mitogens from human brain: acidic and basic fibroblast growth factors.";
FEBS Lett. 204:203-207(1986).
         Wang W.P., Quick D., Balcerzak S.P., Needleman S.W., Chiu I.M.; "Cloning and sequence analysis of the human acidic fibroblast growth factor gene and its preservation in leukemia patients."; Oncogene 6:1521-1529(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 16-155.
MEDLINE: 86296647.
Harper J.W., Strydom D.J., Lobb R.R.;
"Human class I heparin-binding growth factor: structure and homology to bovine acidic brain fibroblast growth factor.";
Biochemistry 25:4097-4103(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Blaber M., Disalvo J., Thomas K.A.; "X-ray crystal structure of human acidic fibroblast growth factor."; Blochemistry 35:2086-2094(1996).
                                                                                                                                                                                                                                                                             MEDLINE; 94069734.

Zhao X.M., Yeoh T.K., Hiebert M., Frist W.H., Miller G.G.;

The expression of acidic fibroblast growth factor (heparin-binding growth factor-1) and cytokine genes in human cardiac allografts and
                                                                                                                                                                                      "An acidic fibroblast growth factor protein generated by alternate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A., "Human brain-derived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitogenic activities."; Biochem. Biophys. Res. Commun. 135:541-548(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              growth factor.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pineda-Lucena A., Jimenez M.A., Nieto J.L., Santoro J., Rico M., Gimenez-Gallego G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.; "The complete amino acid sequence of human brain-derived acidic fibroblast growth factor."; Blochem. Biophys. Res. Commun. 138:611-617(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                               Crumley G., Dionne C.A., Jaye M.;
"The gene for human acidic fibroblast growth factor encodes two upstream exons alternatively spliced to the first coding exon.", Blochem. Biophys. Res. Commun. 171:7-13(1990).
                                                                                                                                                 Li Y.L., Kha H., Golden J.A., Migchielsen A.A.J., Goetzl E.J.,
Turck E.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE; 87048871.
Gautschi Sova P., Mueller T., Boehlen P.;
"Amino acid sequence of human acidic fibroblast granning acide fibroblast granning acidem. Biophys. Res. Commun. 140:874-880(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               X-RAY CRYSTALLOGRAPHY (2.0 ANGSTROMS). MEDLINE; 96194129.
                                                                                                                                                                                                         splicing acts like an antagonist.";
J. Exp. Med. 175:1073-1080(1992).
                                                                                                                                                                                                                                                                                                                                                                          Transplantation 56:1177-1182(1993).
                                                                                                                                                                                                                                                             SEQUENCE OF 1-154 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRUCTURE BY NMR OF 24-155.
                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE OF 1-40 FROM N.A. MEDLINE; 90365758.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE OF 16-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      86295741.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE OF 16-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE; 94358885.
                                                                                                            SEQUENCE FROM N.A. MEDLINE; 92202857.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE OF 16-47
MEDLINE; 86186784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE;
                                                                                                                                                                                                                                                                                                                                                        cells.
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its muse by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                   PRINTS; PRO0262; ILLHBGF.
PRINTS; PRO0263; HBGFCFF.
PROSITE; PS00247; HBGFFFF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding; Acetylation;
                                                                                                                                                                                                                                                                                -i- MISCELLANDOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
THAN DOES BFGF.
-i- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                       Pineda-Lucena A., Jimenez M.A., Lozano R.M., Nieto J.L., Santoro
                                                                               Rico M., Gimenez-Gallego G.; "Three-dimensional structure of acidic fibroblast growth fac solution: effects of binding to a heparin functional analog. J. Mol. Biol. 264:162-178(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACETYLATION.
HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
F586E8BFB09F1580 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HEPARIN-BINDING GROWTH
"1H-NMR assignment and solution structure of hum. growth factor activated by inositol hexasulfate. J. Mol. Biol. 242:81-98(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               M60515; AAA51672.1; ...
M60516; AAA51673.1; ...
M23087; AAA52638.1; ...
M23086; AAA52638.1; ...
S67291; AAB29057.1; ...
X65778; CAA46661.1; ...
                                                                                                                                                                                                                                                                                                                                                                                                                                              AAA52446.1; -. AAA52446.1; JOINED. AAA52446.1; JOINED.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  17460 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; M13361; AAA79245.1; -. EMBL; X51943; CAA36206.1; -.
                                                                                                                                         STRUCTURE BY NMR OF 25-155.
                                                OF 24-155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          155
155
2
28
116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         22-APR-98.
22-APR-98.
11-NOV-98.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FGF; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   , A23553, A23553.
, A24243, A24243.
, A24301, A24301.
, A24662, A24662.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PIR, A24820, A24820.
PIR, A26386, A26386.
PIR, A33665, A33665.
PIR, S18217; S18217.
                                                                                                                                                                                                                                                                          SUBUNIT: MONOMER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2AFG; 15-OCT-95
1AXM; 22-APR-98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               24
24
113
155 AA;
                                                            MEDLINE; 97107535.
                                                NMR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PF00167;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       M30491;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3D-structure
                                                STRUCTURE BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             131220;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2AXM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1RML:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PIR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PIR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PIR;
                                    16]
```

,

```
PRINTS; PR00262; ILLHBGF
                       LT 3
FGF1_MOUSE
P10935;
                                                                                                                                                                                                                  (HBGF-1)
                       RESULT
                                            AGENTS
IN
                                                                                                                                                                                                                                                                                                                                           MEDLINE: 90270291.
Hall J.A., Harris M.A., Malark M., Mansson P.E., Zhou H., Harris S.E.; Characterization of the hamster DDT-1 cell aFGF/HGBF-I gene and CDNA and its modulation by steroids.";
J. Cell. Biochem. 43:17-26(1990).
I. Cell. Biochem. 43:17-26(1990).
I. VOUNCION: THE HEBRARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTY IN VIVO AND ARE POTEBY MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                  -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.

PIR; A60721, A60721.

PRSP: P05230; 2AXM.

PRAM: PF00167; FGF: 1.

PRINTS; PR00262; IL1HBGF.

PRINTS; PR00262; IL1HBGF.

PROSTE; PS00247; HBGF-FGF; 1.

Growth factor; Mitogen; Vascularization; Heparin-binding.

PROPEP 1 15 BY SIMILARITY.

GROWTH FACTOR 1.

BY SIMILARITY.

GROWTH FACTOR 1.

BY SIMILARITY.

BY SEQUENCE 155 AA; 17403 MW; 41E5EC760E412CC5 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-FEB-1994 (Rel. 28, Created)
01-FEB-1994 (Rel. 28, Last sequence update)
15-JUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST
                                                                                                                                                                                                                                                                                                                                                                                                                                            -!- SUBUNIT: MONOMER.
-!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
THAN DOES BFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    13 TEKFNLP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQYL 80
                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                            Mesocricetus auratus (Golden hamster).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
                       3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
 Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 155;
                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 967; DB 1; Le
Pred. No. 2.61e-217;
2; Mismatches 2;
  DB 1; L 4.07e-222;
                                                                                                                                                                                            155 AA.
           red. No. 4.07e-
5; Mismatches
  Score 985;
Pred. No. 4
                                                                                                                                        175 GSCKRGPRTHYGQKAILFLPLPVSSD 200
                                                                                                                            130 GSCKRGPRTHYGQKAILFLPLPVSSD 155
                                                                                                                                                                                            PRT;
68.3%;
larity 93.8%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             67.1%;
larity 97.0%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GQKAILFLPLPVSSD 155
                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                           GROWTH FACTOR) (AFGF).
           Local Similarity
ses 137; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                 Mesocricetus.
                                                                                                                                                                                                                                                                     OR FGF-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   131;
                                                                                                                                                                                 LT 2 .
FGF1_MESAU
P34004;
  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local
                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                  RESULT
                                                                                  g
                                                                                                        ò
                                                                                                                           g
                                                                                                                                                 ò
                                                                                                                                                                                                                                     SHHHHES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                          윱
                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           요
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           and its expression in the adult and developing mouse brain.";
J. Biol. Chem. 271:30263-30271(1996).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE; 90201563.
Hebert J.M., Basilico C., Goldfarb M., Haub O., Martin G.R.;
"Isolation of cDNAs encoding four mouse FGF family members and characterization of their expression patterns during embryogenesis.";
Dev. Biol. 138:454-463(1990).
                                                            01-JUL-1989 (Rel. 11, Created)
01-JUL-1989 (Rel. 11, Last sequence update)
15-JUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -!- SUBUNIT: MONOMER.
-!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "Characterization of the 1B promoter of fibroblast growth factor 1
                                                                                                                                                                                                                                                                              Mus musculus (Mouse), and Rattus norvegicus (Rat).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE; 89240051. Goodrich S., Yan G.C., Bahrenburg R., Mansson P.E.; The nucleotide sequence of rat heparin binding growth factor 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Alam K.Y., Frostholm A., Hackshaw K.V., Evans J.E., Rotter A., Chiu I.M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE; 97128312.
Madiai F., Hackshaw K.V., Chiu I.M.;
"Cloning and characterization of the mouse Fgf-1 gene.";
Gene 179:231-236(1996).
155 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Nucleic Acids Res. 17:2867-2867(1989)
PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL, M30641, AAA37618.1; --
EMBL, U36459, AAC52969.1; --
EMBL, U36457, AAC52969.1; JOINED.
EMBL, U36458, AAC52969.1; JOINED.
EMBL, U67610; AAC52907.1; --
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
SPECIES-MOUSE; STRAIN-BALB/C;
MEDLINE; 97094746.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; X14232; CAA32448.1; -.
                                                                                                                                                                                                             GROWTH FACTOR) (AFGF). FGF1 OR FGF-1: OR FGFA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MGD; MGI:95515; FGF1.
PFAM; PF00167; FGF; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PIR; S04147; S04147
PIR; D37360; D37360
                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      :AXM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SPECIES-MOUSE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HSSP; P05230;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SPECIES-RAT
```

g

õ

õ

```
PIR: S03954; S03954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE OF 2-155
MEDLINE; 87026586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TISSUE-RETINA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    131;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LT 5
FGF1_BOVIN
P03968;
                                                                                                                                                                                                                                                                       CONFLICT
CONFLICT
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                   BINDING
                                                                                                                                                                   CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11D DJT TD DDT T
  DRA NA LE LE LE LE LE S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its modified and property institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      canine hearts.";
Eur. J. Blochem. 181:67-73(1989).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-FEB-1991 (Rel. 17, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
15-JUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING SROWTH FACTOR I PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST GROWTH FACTOR) (ALPHA-ENDOTHELIAL CELL GROWTH FACTOR)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE; 89231704.
Quinkler W., Masaberg M., Bernotat-Danielowski S., Luethe N.,
Sharma H.S., Schaper W.;
"Isolation of heparin-binding growth factors from bovine, porcine and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SUBUNIT: MONOMER.
MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
                                                                                                                                                                                                                                                                                                                                                                                       66 ANYKRPKLIYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                             21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQYL 80
                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PGF1 OR FGF-1.
Sus scrofa (Pig).
Eukaryota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Butheria; Cetartiodactyla; Suina; Suidae; Sus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE; 92062117.
Schmidt M., Sharma H.S., Schott R.J., Schaper W.;
Amplification and sequencing of mRNA encoding acidic fibroblast growth factor (aFGF) from porcine heart.";
Biochem. Biophys. Res. Commun. 180:853-859(1991).
                                                                                                                                                                                                                                                                                                      ö
                                                                                                            HEPARIN-BINDING GROWTH FACTOR 1.
                                                                                                                                                                                                                                             Length 155;
                         PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                PARIN (POTENTIAL).
8880E4FF0FBA4161 CRC64;
                                                                                                                                                                                                                                                   Score 966; DB 1; L. Pred. No. 4.82e-217;
                                                                                                                                         (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    152 AA.
                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                   HEPARIN
HEPARIN
                                                                 15,
155
155
16 h.
17418 MW; b
                                                                                                                                                                                                                                                                                                         э;
Э
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; X60317; CAA42869.1; -.
                                                                                                                                                                                                                                                67.0%;
ilarity 96.3%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                141 GQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                       16
24
113
155 AA;
                                                                                                                                                                                                                                                                          Local Similarity
les 130; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             THAN DOES BEGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE OF 22-41.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
PRINTS; PR00263;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TISSUE-HEAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FRAGMENT)
                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                   Query Match
                                                                                                                                      BINDING
                                                                                                                                                                   BINDING
                                                                                PROPEP
                                                                                                                                                                                                                                                                               Best Loca
Matches
                                                                                                            CHAIN
```

```
ñ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Halley C., Courtois Y., Laurent M.; "Nucleotide sequence of bovine acidic fibroblast growth factor cDNA."; Nucleic Acids Res. 16:10913-10913(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           70 YIKSTETGQYLAMDTSGLLYGSQTPSEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKN 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    115 YIKSTETGQYLAMDTDGLLYGSQTPNEECLFLEENHYNTYISKKHAEKNWFVGLKKN 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         23-0CT-1986 (Rel. 02, Created)
01-MAR-1989 (Rel. 10, Last sequence update)
15-JUJ-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST GROWTH FACTOR) (AFGF) (ROSTATROPIN) (ENDOTHELIAL CELL GROWTH FACTOR
BETA AND ALPHA CHAINS) (ACIDIC EXE-DERIVED GROWTH FACTOR II) (EDGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Laurent M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bos taurus (Bovine).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Burgess W.H., Mehlman T., Marshak D.R., Fraser B.A., Maciag T.; "Structural evidence that endothelial cell growth factor beta is t precursor of both endothelial cell growth factor alpha and acidic
                                                                                                                       HEPARIN-BINDING GROWTH FACTOR 1.
ENDORHELIAL CELL GROWTH FACTOR ALPHA.
HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                             13 TEKFNLP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV
                                                                                                                                                                                                                                                                                                                                            Length 152;
                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                         Vascularization; Heparin-binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alterio J., Halley C., Brou C., Soussi T., Courtois Y., "Characterization of a bovine acidic FGF cDNA clone and expression in brain and retina.";
FEBS Lett. 242:41-46(1988).
                                                                                                                                                                                                                                                                                              17103 MW; AE853B0A92F9ABF4 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     fibroblast growth factor.";
Proc. Natl. Acad. Sci. U.S.A. 83:7216-7220(1986).
                                                                                                                                                                                                                                                                                                                                               Score 954; DB 1; L
Pred. No. 7.69e-214;
                                                                                                                                                                                                                       C -> S (IN REF. 2)
R -> Y (IN REF. 2)
                                                                                                                                                                                                                                                                                                                                                                                               6; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OR FGF-1 OR FGFA OR HBGF-1 OR AFGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         130 GSCKRGPRTHYGQKAILFLPLPV 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HSSP; P05230; ZAXM.
PFAM; PF00167; FGF; 1.
PROSITE; PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                                                                                                                            66.2%;
ilarity 91.6%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                            Growth factor; Mitogen; PROPEP
                                                                                                                                                                       28
116
31
39
152
                                                                                                                         >152
                                                                                                                                                   >152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bovidae; Bovinae; Bos.
                                                                                                                                                                                                                                                                                              152. AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                      Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  89078619.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE OF 2-155.
MEDLINE; 87016918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE; 89083506
                                                                                                                         16
22
22
24
113
31
31
32
152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TISSUE-RETINA;
```

S

Disalvo J

```
PRINTS; PR00262; ILIHBGF.
PRINTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding; Acetylation; 3D-structure.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         21 GNYKKPKLLYCSNGGYFLRILPDGTVDGTKDRSDQHIQLQLCAESIGEVYIKSTETGQFL 80
                                                                                                                                                                                                                                                                 ENDOTHELIAL CELL GROWTH FACTOR BETA. HEPARIN-BINDING GROWTH FACTOR 1. ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    17493 MW; F636641F189F9BFD CRC64;
                                                                                                                                                                                                                                                                                                                                      HEPARIN (POTENTIAL). HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 917; DB 1; LA
Pred. No. 5.59e-204;
6; Mismatches 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FGF1_CHICK STANDARD; PRT; 155 AA P19596; 01-FEB-1991 (Rel. 17, Created) 01-FEB-1996 (Rel. 33, Last sequence update)
                                                                                                                                                                                                                                                                                                                        ACETYLATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      63.68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     larity 91.9%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  141 GQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    443
449
601
73
85
85
                                                                    PIR; B24663; B24663.
PIR; S02102; S02102.
PDB; IBAR; 31-OCT-93.
PDB; IARC; 31-OCT-93.
PFAM; PF00167; FGF; 1.
                     B25043; B25043.
C25043; C25043.
A24477; A24477.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                147
155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity
nes 124; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRAND
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                      BINDING
                                                                                                                                                                                                                                                                                                                    MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                                           STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRAND
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                        BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAND
                                                                                                                                                                                                                                                 PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAND
                                                                                                                                                                                                                                                                                   CHAIN
                                                                                                                                                                                                                                                                     CHAIN
                                                                                                                                                                                                                                                                                                     CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                HELIX
                                                                                                                                                                                                                                                                                                                                                                                           TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        URN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         URN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         845E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        This SWISS-PROT entry is copyright. It is produced through a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Science 251:90-93(1991)
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIGGENIC AGENTS
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS AND THE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE OF 16-45.
MEDITUE: 89231704.
QUINKIER W., Masaberg M., Bernotat-Danielowski S., Luethe N.,
Sharma H.S., Schaper W.;
"Isolation of heparin-binding growth factors from bovine, porcine and
canine hearts."; 21:67-73(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY THAN DOES BFGF.
SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDILINE; 91095983.
Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
Hsu B.T., Rees D.C.;
"Three-dimensional structures of acidic and basic fibroblast growth
                                                                                                                                                          isalvo J., Thomas K.;
Brain-derived acidic fibroblast growth factor: complete amino acid
Crabb J.W., Armes L.G., Carr S.A., Johnson C.M., Roberts G.D., Bordoli R.S., McKeehan W.L., Complete primary structure of prostatropin, a prostate epithelial cell growth factor.";

Blochemistry 25:4988-4993(1986).
                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE; 86261806.

Abraham J.A., Mergia A., Whang J.L., Tumolo A., Friedman J., Hjerrild K.A., Gospodarowicz D., Fiddes J.C.;

"Nucleotide sequence of a bovine clone encoding the anglogenic protein, basic fibroblast growth factor.";

Science 233:545-548(1986).
                                                                                                                                         Gimenez-Gallego G., Rodkey J., Bennett C., Rios-Candelore M.,
                                                                                                                                                                                                                                                               MEDLINE; 86055750.

Boehlen P., Esch F., Baird A., Gospodarowicz D.;

Macidic fibroblast growth factor (FGF) from bovine brain:
amino-terminal sequence and comparison with basic FGF.";

EMBO J. 4:1951-1956(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE OF 1-18 FROM N.A.
Philippe J.M., Renaud F., Desset S., Laurent M.;
Submitted (JUL-1992) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS)
                                                                                                                                                                                                                                               SEQUENCE OF 16-44, AND COMPOSITION.
MEDLINE; 86055750.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; M13439; AAA30516.1; -.
                                                                                                                                                                                              sequence and homologies.";
Science 230:1385-1388(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   X13221; CAA31610.1; -
                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE OF 16-56 FROM N.A.
MEDLINE; 86261806.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   M35608; AAA30517.1;
X66446; CAA47063.1;
M97660; AAA30563.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; X66446; CAA47063.1;
EMBL; M97660; AAA30563.1;
EMBL; M97661; AAA30564.1;
PIR; A01385; GKBOA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 X14032; CAA32192.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SUBUNIT: MONOMER.
                                                                                     [5]
SEQUENCE OF 16-155.
WENTINE; 86070224.
```

ö

Gaps

ö

EMBL; EMBL;

Length 155;

ø

```
RESULT
                                                RESULT
                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                        This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the burpean Bioinformatics institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                               EMBO J. 7:959-962(1988).

-!- FUNCTION: THE HEPARIN BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       66 ANYKKPKILYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AMDINGLLYGSQLPGEECLFLERLEENHYNTYISKKHADKNWFVGLKKNGNSKLGPRTHY 140
15-JUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST GROWTH FACTOR) (ALPHA-ENDOTHELIAL CELL GROWTH FACTOR).
                                              Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
                                                                                                                                                                                                                                                                                                                                                                                           -!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
                                                                                                                                                                                                                                                                                                                                                                                                     THAN DOES BFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         21 GNYKKPKLLYCSNGGHFLRILPDGKVDGTRDRSDQHIQLQLSAEDVGEVYIKSTASGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Gaps
                                                                                                                                                                                                                                                               MEDLINE; 88296438.
Natuschi-Sova P., Boehlen P.;
Endothelial cell growth factors in embryonic and adult chick brain are related to human acidic fibroblast growth factor.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HEPARIN-BINDING GROWTH FACTOR 1.
ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
8EDB70545E2B4365 CRC64;
                                                                                                                                      Schnurch H., Risau W.;

"Differentiating and mature neurons express the acidic fibroblast
"Differentiating and mature neural development.";

Development 111:1143-1154(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 916; DB 1; Length 155; Pred. No. 1.03e-203;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7; Indels
                                                                                                                                                                                                                             to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL, S63263; AAB19629.1; -.
EMBL, U31863; AAA80310.1; -.
EMBL, S63261, AAA13942.1; -.
PIR. S02639.
HSSP, P02230, 2AXM.
PRAM; PF00167; FGF; 1.
PRINTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGFFGF; 1.
GTOWTh factor; Mitogen; Vascula
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17322 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        63.5%;
ilarity 90.4%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          141 GOKAILFLPLPVSAD 155
                                                                                                                                                                                                               Martin G.R., Han J.K.;
Submitted (JUL-1995) to
                                                                                                                                                                                                                                                                                                                                                                            SUBUNIT: MONOMER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   113 1
155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
                                                                                                              SEQUENCE FROM N.A.
                                                                                                                           91347925.
                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                    SEQUENCE OF 22-48.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 122;
                                     OR FGF-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BINDING
                                                                                                                             MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BINDING
                                                                                       Sallus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KAKAKAK TITI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isp-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SUBUNIT: MONOMER.
MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     66 ANYKRPKLLYCSNGGHFLRILDPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTENGQYL 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                87 AMKEDGRILLALKCATEECFFFERLESNNYNTYRSRKYSD--WYVALKRTGQYKPGPKTGP 144
                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        86
                                                                                                                                                                                      01-FEB-1996 (Rel. 33, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        27 GHFKDPKRLYCKNGGFFLRINPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVSANRFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BOTJA A.Z., Zeller R., Meljers C.;
Borja A.Z., Zeller R., Meljers C.;
"Expression of alternatively spliced bFGF first coding exons and antisense mRNAs during chicken embryogenesis.";
Dev. Biol. 157:110-118 (1993)
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC P. IN VIVO AND ARE POTFERS MITGOGENS FOR A VARIETY OF CELL TYPES I VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Growth factor; Mitogen: Vascularization; Heparin-binding.
PROPEP 1 12 BY SIMILARITY.
CHAIN 13 158 HEPARIN-BINDING GROWTH FACTOR 2.
BINDING 30 34 HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 1; Length 158;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pred. No. 2.08e-100;
23; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HEPARIN (POTENTIAL).
7B69B684C17F1816 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Æ
                                                                                                                                          158 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 522;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; M95707; AAA48617.1; -...
HSSP; P09038; 1BFF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PFAM; PF00167; FGF; 1.
PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFEGF.
PROSITE; PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      158 AA; 17374 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          36.2%;
ilarity 54.5%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STANDARD;
GOKAILFLPLPVSSD 200
                                                                                                                                                                                                                                                                                                                                                                Gallus gallus (Chicken).
                                                                                                                                       STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   145 GQKAILFLPMSAKS 158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    186 GOKAILFLPLPVSS 199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     158
34
122
                                                                                                                                                                                                                                                                                                         GROWIH FACTOR) (BFGF).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local Similarity
Matches 73; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A. MEDLINE; 93246053.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  93246053
                                                                                                                                                                                                                                                                                                                                   FGF2 OR FGF-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FGF2_SHEEP
                                                                                                                                       FGF2_CHICK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BINDING
                                                                                                                                                              P48800;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gallus
                            186
```

ä

AX PRESENCE OF THE PROPERTY OF

```
Science 251:90-93(1991).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIGGENIC AGENTS
IN VIVO AND ARE POTENT MITGENS FOR A VARIETY OF CELL TYPES IN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ueno N., Baird A., Esch F., Shimasaki S., Ling N., Guillemin R.; "Purification and partial characterization of a mitogenic factor from bovine liver: structural homology with basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Esch F., Baird A., Ling N., Ueno N., Hill F., Denoroy L., Klepper R., Gospodarowicz D., Boehlen P., Guillemin R.; "Primary structure of bovine pituitary basic fibroblast growth factor acidic FGF) and comparison with the amino-terminal sequence of bovine brain acidic FGF.";
                                                                       23-OCT-1986 (Rel. 02, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTATROPIN) [CONTAINS: KIDNEY-DERIVED GROWTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Baird A., Esch F., Boehlen P., Ling N., Gospodarowicz D., "Isolation and partial characterization of an endothelial cell growth factor from the bovine kidney: homology with basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.; "Human basic fibroblast growth factor: nucleotide sequence, genomic organization, and expression in mammalian cells."; Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE; 91095983.
Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
Hsu B.T., Rees D.C.;
"Three-dimensional structures of acidic and basic fibroblast growth
                                                                                                                                                                                                             Bos taurus (Bovine).
Sukaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
Bovidae; Bovinae; Bos.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ueno N., Baird A., Esch F., Ling N., Guillemin R.; "Isolation of an amino terminal extended form of basic fibroblast growth factor.";
                                                                                                                                                                                                                                                                                                                                                                     Abraham J.A., Mergia A., Whang J.L., Tumolo A., Friedman J., Hjerrild K.A., Gospodarowicz D., Fiddes J.C.; "Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fibroblast growth factor."; Science 233:545-548(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Proc. Natl. Acad. Sci. U.S.A. 82:6507-6511(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              iochem. Biophys. Res. Commun. 138:580-588(1986).
         155 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
                                                      Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Regul. Pept. 16:135-145(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Regul. Pept. 12:201-213(1985).
         STANDARD;
                                                    23-OCT-1986 (Rel. 02,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE OF 10-155.
MEDLINE; 86016731.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE; 86295737.
                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE; 86095426.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE OF 21-40.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE; 87119165.
                                                                                                                                                                                                                                                                                                                                                    86261806.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE OF 25-41.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    87217066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE OF 1-9
                                                                                                                                                                                        FGF2 OR FGF-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TISSUE-KIDNEY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TISSUE=KIDNEY
       FGF2_BOVIN
P03969;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               factors.
                                                                                                                                                                                                                                                                                                                                                    MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  factor
           This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEBS Lett, 224:128-132(1987).

-i- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS

IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN

VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND

CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -!- SUBUNIT: MONOMER.
-!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       66 ANYKRPKLIXCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSARSVGEVXIKSTETGQYL 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         84 AMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGPKTGP 141
01-FEB-1991 (Rel. 17, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 24 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL 83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                      Ovis aries (Sheep).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoldea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5;
                                                                                                                                                                                                                                                                                                                                                                     MEDLINE; 88055577.
Simpson R.J., Moritz R.L., Lloyd C.J., Fabri L.J., Nice E.C.,
Kubira M.R., Burgess A.W.;
Primary structure of ovine pituitary basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CELL ATTACHMENT SITE (POTENTIAL)
CELL ATTACHMENT SITE (POTENTIAL)
HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HEPARIN-BINDING GROWTH FACTOR 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 1; Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HSSP; P09038; 1BFF.
PRAM; PF00167; FGF; 1.
PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFFGF.
PRINTS; PS00247; HBGFFGF.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    36; Indels
                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
Sutton R., Ward W.G., Raphael K.A., Cam G.R.;
Submitted (SEP-1994) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B5F2364BA610606D CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No. 7.16e-99;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    22; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       or send an email to license@isb-sib.ch)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 516;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          17280 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; L36136; AAA31519.1; -. PIR; S00185; S00185.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       35.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity 55.2%;
Matches 74; Conservative
                                                                                                                                                                                                             Bovidae; Caprinae; Ovis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   142 GOKAILFLPMSAKS 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        155 AA;
                                                                                                                                                                                                                                                                                                                                                SEQUENCE OF 9-155.
                                                                                                                 OR FGF-7
```

**/**288888888888888888888888

SEQUENCE Query Match

윤 ò 셤 ò ద ò

BINDING BINDING

FFFS

CHAIN

ω

```
142 GOKAILFLPMSAKS 155
                                                                                                                                Homo sapiens (Human)
                                                                                                                                                                SEQUENCE FROM N.A. MEDLINE; 87053817.
                                                                                                                                                                                                                                     SEQUENCE FROM N.A. MEDLINE; 87217066.
                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A. MEDLINE; 87213238.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE OF 10-35.
                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     86275260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE OF 10-39
MEDLINE; 86186784
                                                                                                                                                                                                                                                                                                                                                                             87162468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           [8]
SEQUENCE OF 2-22.
                                                                                                                                                                                                                                                                                                                                   "A form of huma
amino terminus.
                                                                                                                       FGF2 OR FGFB
                                                          FGF2_HUMAN
P09038;
                                                                                                                                                                                                                                                                                                                                                                              MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE;
                                                           음
                          à
                                                          This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SUBUNIT: MONOMER.
MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                66 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  84 AMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGPKTGP 141
                                           -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL 83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2; Gaps.
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                            KIDNEY-DERIVED GROWTH FACTOR.
CELL ATTACHNENT SITE (POTENTIAL).
CELL ATTACHNENT SITE (POTENTIAL).
HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                    HEPARIN-BINDING GROWTH FACTOR 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 155;
                                                                                                                                                                                                            Vascularization; Heparin-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BE6CE70FA6107129 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 516; DB 1;
Pred. No. 7.16e-99;
22; Mismatches 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             17250 MW;
                                                                                                                             EMBL; M13440; AAA30518.1; -.
PIR; A24663; GKBOB.
PIR; A24819; A24819.
PIR; A32878; A332878.
PDB; 1BAS; 31-0CT-93.
PFAM; PF00167; FGF; 1.
                                                                                                                                                                                PRINTS; PR00262; IIIHBGF.
PRINTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascul
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity 55.2%;
Matches 74; Conservative
                                                                                                                                                                                                                                                                                                         148
155 AA;
                                                                                                                                                                                                                    D-structure.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAND
SEQUENCE
                                                                                                                                                                                                                                                                      BINDING
                                                                                                                                                                                                                                                                                                                TURN
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                  STRAND
                                                                                                                                                                                                                                                                                                                                                                   STRAND
                                                                                                                                                                                                                                                                                                                                                                                   STRAND
TURN
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                              HELIX
STRAND
TURN
STRAND
TURN
STRAND
STRAND
TURN
STRAND
                                                                                                                                                                                                                                                                                       STRAND
                                                                                                                                                                                                                                                                                                         STRAND
                                                                                                                                                                                                                           PROPEP
                                                                                                                                                                                                                                             CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HELIX
                                                                                                                                                                                                                                     CHAIN
                                                                                                                                                                                                                                                                                                                                           IELIX
                                                                                                                                                                                                                                                                                                 URN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   126
                                                                                                                                                                                                                                                       SITE
                                                                                                                                                                                                                                                              SITE
a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
```

```
Gautschi P., Frater-Schroeder M., Boehlen P.;
"Partial molecular characterization of endothelial cell mitogens from human brain: acidic and basic fibroblast growth factors.";
FEBS Lett. 204:203-207(1986).
                                                                          01-NOV-1988 (Rel. 09, Created)
01-NOV-1988 (Rel. 09, Last sequence update)
01-NOV-1997 (Rel. 35, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSIATROPIN)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.; "Human basic fibroblast growth factor: nucleotide sequence, genomic organization, and expression in mammalian cells."; cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).
                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   High molecular mass forms of basic fibroblast growth factor are
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.;
"Human brain-derived acidic and basic fibroblast growth factors:
amino terminal sequences and specific mitogenic activities.";
Blochem. Blophys. Res. Commun. 135:541-548(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sommer A., Brewer M.T., Thompson R.C., Moscatelli D., Presta M., Rifkin D.B.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          human basic fibroblast growth factor with an extended
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Kurokawa T., Sasada R., Iwane M., Igarashi K.;
"Cloning and expression of cDNA encoding human basic fibroblast
growth factor.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Abzahan J.A., Whang J.L., Tumolo A., Mergia A., Friedman J.,
Abzahan J.A., Whang J.L., Tumolo A., Mergia A., Friedman J.,
Gospodarowicz D., Fiddes J.C.;
"Human basic fibroblast growth factor: nucleotide sequence and
genomic organization.";
EMBO J. 5:2523-2528(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Prats H., Kaghad M., Prats A.C., Klagsbrun M., Lelias J.M.,
Liauzun P., Chalon P., Tauber J.P., Amalric F., Smith J.A.,
Caput D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Biochem. Biophys. Res. Commun. 144:543-550(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               initiated by alternative CUG codons.";
Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).
155 AA.
    PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEBS Lett. 213:189-194(1987).
STANDARD;
```

```
66 ANYKRPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            84 AMKEDGRLLASKCYTDECFFERLESNNYNTYRSRKYT--SWYVALKRTGQYKLGSKTGP 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              24 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL 83
                                                                                                                                                                                                                                                                                                                                                                                         HEPARIN-BINDING GROWTH FACTOR 2. CELL ATTACHMENT SITE (POTENTIAL). CELL FITACHMENT SITE (POTENTIAL).
                                                                                                                                                                                                                                                                           PFAM, PF00167; FGF; 1.
PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17254 MW; BE6CE13373007129 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                          HEPARIN (POTENTIAL)
HEPARIN (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 509; DB 1; I
Pred. No. 4.42e-97;
23; Mismatches 36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             35.3%;
illarity 54.5%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                            107
                                                                                                                                              1BFB; 03-APR-96.
1BFC; 03-APR-96.
1BFF; 16-JUN-97.
1BFG; 31-JAN-94.
2BFH; 30-APR-94.
1BLA; 08-NOV-96.
                                              B24301; B24331.
B32878; B32878.
S00297; S00297.
2FGF; 15-JUL-93.
1FGA; 15-JUL-93.
                                 B24243.
B24301.
B32878.
S00297.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity
tes 73; Conser
                                                                                                                                                                                                                                                                                                                                                         3D-structure.
PROPEP
CHAIN
SITE
SITE
BINDING
BINDING
STRAND
STRAND
STRAND
STRAND
TURN
TURN
TURN
                                                                                                                                                                                                                                                              134920;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TURN
HELIX
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HELIX
STRAND
TURN
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HELIX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      rurn
     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE; 97040521.

MOY F.J., Seddon A.P., Boehlen P., Powers R.;

MOY F.J., Seddon A.P., Boehlen P., Powers R.;

MIGh-resolution solution structure of basic fibroblast growth factor determined by multidimensional heteronuclear magnetic resonance spectroscopy.";

Biochemistry 35:1355-13561(1996).

IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITNO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCEMTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                            MEDLINE; 94004464.

Eriksson A.E., Cousens L.S., Matthews B.W.;

Refinement of the structure of human basic fibroblast growth factor at 1.6-A resolution and analysis of presumed heparin binding sites by selenate substitution.";

Protein Sci. 2:1274-1284(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -!- SUBUNIT: MONOMER.
-!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                       -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
               Story M.T., Esch F., Shimasaki S., Sasse J., Jacobs S.C., Lawson R.P. Amino-terminal sequence of a large form of basic fibroblast growth factor isolated from human benign prostatic hyperplastic tissue."; Biochem. Biophys. Res. Commun. 142:702-709(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Three-dimensional structures of acidic and basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE; 91095983.
Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
Hsu B.T., Rees D.C.;
                                                                                                          MEDLINE; 91195367.
Eriksson A.E., Cousens L.S., Weaver L.H., Matthews B.W.;
"Three-dimensional structure of human basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE; 92121151.
Ago H., Kitagawa Y., Fujishima A., Matsuura Y., Katsube Y.;
"Crystal structure of basic fibroblast growth factor at 1.6-A
                                                                                                                                                                               roc. Natl. Acad. Sci. U.S.A. 88:3441-3445(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           or send an email to license@isb-sib.ch)
                                                                                                                                                                                                                                                                                                                                       X-RAY CRYSTALLOGRAPHY (1.8 ANGSTROMS).
MEDLINE; 91195368.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS).
                                                                                             X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS)
                                                                                                                                                                                                                                                                                                                                                                                                                                                         X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).
                                                                                                                                                                                                             X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        X04431; CAA28027.1; ...
X04432; CAA28028.1; ...
X04433; CAA28029.1; ...
X0458; AAA52448.1; ...
J04513; AAA52533.1; ALT_INIT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; M17599; AAA52534.1; ALT_INIT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Biochem. 110:360-363(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Science 251:90-93(1991).
MEDLINE; 87156686.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRUCTURE BY NMR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        resolution."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       factors.
                                                                                                                                                                factor."
```

;;

GQKAILFLPMSAKS 155 

142

EMBL; EMBL; EMBL; EMBL; MBL;

ö

Length 155;

```
SECUENCE FROM N.A.
                                                      OR FGF-2
                                                                                                                                                                                                                               TISSUE-BRAIN
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bloinformatics and the EMBL outstation the Buropean Bloinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to licenseelab-sib.ch).
                                                                                                                                                                              MEDINE; 90201563.

Hebert J.M., Basilico C., Goldfarb M., Haub O., Martin G.R.;
Hebert J.M., Basilico C., Goldfarb M., Haub O., Martin G.R.;
"Isolation of cDNAs encoding four mouse FGF family members and
characterization of their expression patterns during embryogenesis.";
Dev. Biol. 138:454-463(1990).
-I- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VIRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   83 AMKEDGRLIASKCVTEECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGSKTGP 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                 01-APR-1990 (Rel. 14, Last sequence update)
01-FEB-1996 (Rel. 33, Last annoctation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTATROPIN).
                                                                                                                                                                                                                                                                                                                      -! - SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      23 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYL 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                          Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ά.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HEPARIN-BINDING GROWTH FACTOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PFAM; PF00167; FGF; 1.
PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HEPARIN (POTENTIAL)
689F677416274388 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 508; DB 1;
Pred. No. 7.97e-97;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  23; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AA.
                                  154 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                  PRT;
                                                       01-APR-1990 (Rel. 14, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          115 118 H
154 AA; 17153 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; M30644; AAA37621.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          35.2%;
larity 54.5%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                  STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               141 GOKAILFLPMSAKS 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            154
                                                                                                                                                                                                                                                                                                                                                                                                                                              PIR; C37360; C37360.
HSSP; P09038; IBFF.
MGD; MGI:95516; FGF2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local Similarity
                                                                                                                                                                     SEQUENCE FROM N.A
                                                                                                              OR FGF-2
                      LT 11
FGF2_MOUSE
P15655;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LT 12
FGF2_RAT
P13109;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CHAIN
BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    186
                                                                                                               FGF2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
ID FG
AC P1
                      RESULT
                                           F S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ద
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bloinformatics institute. There are no restrictions on its mose by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -i- SUBUNIT: MONOMER.
-i- TISSUE SPECIFICITY: FOUND IN ALL THE TISSUES EXAMINED.
-i- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE; 89061721.
Shimasaki S., Emoto N., Koba A., Mercado M., Shibata F.,
Cooksey K., Baird A., Ling N.;
"Complementary DNA cloning and sequencing of rat ovarian basic fibroblast growth factor and tissue distribution study of its mRNA.";
Biochem. Blophys. Res. Commun. 157:256-263(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                El-Husseini A.E.D., Paterson J.A., Myal Y., Shiu R.P.C.;
"PCR detection of the rat brain basic fibroblast growth factor (bFGF)
mRNA containing a unique 3' untranslated region.";
Blochim. Blochim. Acta Illa1:314-316(1992).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTY
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                             Rattus norvegicus (Rat).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
01-JAN-1990 (Rel. 13, Created)
01-JAN-1990 (Rel. 13, Last sequence update)
15-JUL-1998 (Rel. 36, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSIATROPIN).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE; 97200905.

Pasumarthi K.B.S., Jin Y., Cattini P.A.;
"Cloning of the rat fibroblast growth factor-2 promoter region and its response to mitogenic stimuli in glioma C6 cells.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE; 88262516.
Krockawa T., Seno M., Igarashi K.;
"Nucleotide sequence of rat basic fibroblast growth factor cDNA.";
Nucleic Acids Res. 16:5201-5201(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HEPARIN-BINDING GROWTH FACTOR 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HSSP, P09038, IBFF.
PFAM; PF00167; FGF; 1.
PRINTS; PR00265; HILHBGF.
PROSITE; PS00247; HBGF-FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
PROPER 10 154 HEPARIN-BINDING GROWTH FACTO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 1-28 FROM N.A.
STRAIN-SPRAGUE-DAWLEY; TISSUE-TESTIS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE OF 35-154 FROM N.A.
STRAIN-SPRAGUE-DAWLEY; TISSUE-BRAIN;
MEDLINE; 92329546.
                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
STRAIN-SPRAGUE-DAWLEY; TISSUE-OVARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Neurochem. 68:898-908(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; M22427; AAA41210.1; -.
EMBL; X07285; CAA30255.1; -.
EMBL; U78079; AAC53225.1; -.
EMBL; X61697; CAA43863.1; -.
PIR; S00876; S00876.
```

ij

Gaps

.; ?

22; Mismatches 37; Indels

FT

8 6 8 6 8

```
73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     embryo.";
cell 51:869-877(1987)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Xenopodinae; Xenopus
                                                                                                                                                                                                                                                       143 GOKAILFLPMSAKS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             10
27
116
111
155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE; 88052890:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FGF2 OR FGF-2.
                                                                                                                                                                                                                                                                                                                                                                                                      FGF2_XENLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CHAIN
                                                    25
     Matches
                                                                                                                                                                                                                                                                                                                                                                            2012

2012

2012

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

2013

                                                    g
                                                                                                                                                                                                                                                    g
                                                                                                  ò
                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics. Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                    ï
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   66 ANYKRPKLIYCSNGGHFLRILDPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 125
                                                                                                                                                                                                                                                                                                   83 AMKEDGRLLASKCVTEECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGSKTGP 140
                                                                                                                                                                                                                                                                                                                             126 AMDIDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRIHY 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-FEB-1996 (Rel. 33, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
01-NOV-1997 (Rel. 35, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTAIROPIN).
                                                                                                                                                                                                23 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYL 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Monodelphis domestica (Short-tailed grey opossum).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Metatheria; Didelphimorphia; Didelphidae; Monodelphis.
                                                                                                                                                    ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 498; DB 1; Length 156; Pred. No. 2.85e-94;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
PROPEP BY SIMILARITY.
                                                                                                                                                    Indels
                                                 1A0F14FF423D8403 CRC64;
HEPARIN (POTENTIAL). HEPARIN (POTENTIAL).
                                                                                                Score 508; DB 1; Le.
Pred. No. 7.97e-97;
23; Mismatches 36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CONCENTRATION OF THESE 2 GROWTH FACTORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        156 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; 215154; CAA78854.1; ALT_INIT.
HSSP; P09038; 1BFF.
PFAM; PF00167; FGF; 1.
                                                 17139 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17303 MW;
                                                                                                7 Match
Local Similarity 54.5%;
les 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   34.5%;
54.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                              156
                                                                                                                                                                                                                                                                                                                                                                                                 141 GOKAILFLPMSAKS 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SUBUNIT: MONOMER
26
115 1
154 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  156 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LT 13
FGF2_MONDO
P48798;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TISSUE-EYE;
                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE
                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BINDING
  BINDING
                          BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BINDING
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@lib-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;
                                                                                                            66 ANYKKPKLIJYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            !- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-JAN-1990 (Rel. 13, Last sequence update)
01-NOV-1997 (Rel. 35, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
GHFKDPKRLYCKNGGFFLRIHPDGRVDGIREKSDPNIKLQLQAEERGVVSIKGVCANRYL 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            role
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Xenopus laevis (African clawed frog).
Eukaryota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE; 89058621.
Kimelman D., Abraham J., Haaparanta T., Palisi T., Kirschner M., The presence of fibroblast growth factor in the frog egg: its as a natural mesoderm inducer.";
Science 242:1053-1056(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kimelman D., Kirschner M.; "Synergistic induction of mesoderm by FGF and TGF-beta and the identification of an mRNA coding for FGF in the early Xenopus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;;
;;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HEPARIN-BINDING GROWTH FACTOR HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
HESARISING (IN REF. 2).
036735C8063142FD CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 493; DB 1; Length 155; Pred. No. 5.38e-93; 27; Mismatches 43; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PIR; A29618; A29618.
PIR; A40117; A40117.
HSSP; P09038; 1BFF.
PFRM; PF00167; FGF; 1.
PRINTS; PR00262; ILIHBGF.
PROSTITE; PS00247; HBGFFEF; 1.
Growth factor; Mitogen; Vascularization; Heparln-binding.
                                                                                                                                                                                                                                                                                                                                                                                                       155 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-OCT-1989 (Rel. 12, Created)
01-JAN-1990 (Rel. 13, Last seq
01-NOV-1997 (Rel. 35, Last anno
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             111 N
17241 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; M18067; AAA49726.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE OF 95-155 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  34.2%;
50.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity 50.7%;
Matches 74; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                       STANDARD;
                                                                                                                                                                                                                                                                186 GQKAILFLPLPVSS 199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              31
31
119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GROWTH FACTOR) (BFGF).
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage 'by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE; 93343209.

Winkles J.A., Friesel R., Alberts G.F., Janat M.F., Liau G.;
Winkles J.A., Friesel R., Alberts G.F., Janat M.F., Liau G.;
Winkles J.A., Friesel R., Alberts G.F., Janat M.F., Liau G.;
Wincrealized rabbit smooth muscle cell line.";
Am. J. Pathol. 143:518-527(1993).

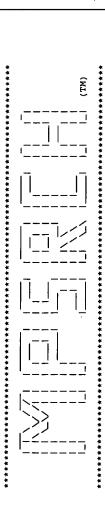
-! FUNCTION: THE HERBARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     66 ANYKRPKLIZCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSABSVGEVXIKSTETGQYL 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               75 AMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGSKTGP 132
                                                                           72 VSIKGITANRYLAMKEDGRLTSLRCITDECFFFERLEANNYNTYRSRKYS--SWYVALKR 129
ESEDGGNTPFSPGSFKDPKRLYCKNGGFFLRINSDGRVDGSRDKSDSHIKLQLQAVERGV 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2; Gaps
                                                                                                                                                                                                                                                                                                            01-FEB-1996 (Rel. 33, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTATROPIN) (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                Oryctolagus cuniculus (Rabbit).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 466; DB 1; Length 137;
Pred. No. 3.94e-86;
21; Mismatches 34; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PFAM; PF00167; FGF; 1.

PROSITE; PS00247; HBGF_FGF; 1.

Growth factor; Mitogen; Vascularization; Heparin-binding.
BINDING 18 22 HEPARIN (POTENTIAL).
BINDING 19 110 HEPARIN (POTENTIAL).
NON_TER 137 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            137 AA; 15418 MW; 0D9EE457B88E8C51 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A. STRAIN-NEW ZEALAND WHITE; TISSUE-SMOOTH MUSCLE;
                                                                                                                                                                                                                                                                             137 AA
                                                                                                                                                       130 TGOYKNGSSTGPGOKAILFLPMSAKS 155
                                                                                                                                                                               174 NGSCKRGPRTHYGQKAILFLPLPVSS 199
                                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   32.3%;
ilarity 54.4%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; L12034; AAA31248.1; -
HSSP; P09038; 1BFF.
                                                                                                                                                                                                                                                                             STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SUBUNIT: MONOMER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        133 GQKAI 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              68;
                                                                                                                                                                                                                                                       LT 15
FGF2_RABIT
P48799;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                         RESULT
                                                                           g
                                                                                                                  δλ
                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                             1255E
                                                                                                                                                                                                                                                                                                                                                                                       ST FT SO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                    ò
                                                                                                                                                       g
```

0y 186 GOKAI 190

Search completed: Tue Aug 29 15:50:05 2000 Job time : 56 secs.



Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

MPsrch\_pp protein - protein database search, using Smith-Waterman algorithm

Tue Aug 29 15:50:22 2000; MasPar time 18.31 Seconds 757.385 Million cell updates/sec Sular output not generated. ou:

1 MAPARLFALLEFFVGGVAES......PRTHYGQKAILFLPLPVSSD 200 >US-09-121-017B-17 (1-200) from US09121017B.pep 1442 Description: Perfect Score: Title:

PAM 150 Gap 11 Scoring table:

Sequence:

225878 seqs, 69334122 residues Searched:

Minimum Match 0% Listing first 45 summaries Post-processing:

Database:

Mean 43:854; Variance 66.524; scale 0.659 Statistics:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

Result No.	Score	Query	Query Match Length	DB	8	Description	Pred. No.	
1	511	35.4	130	9	077767	BASIC FIBROBLAST GROWT	1.91e-100	
7	509	35.3	196	4	P78443		6.40e-100	
3	382	26.5	101	13	P79706	BASIC FGF (FRAGMENT).	5.01e-67	
4	346	24.0	146	13	007659	FIBROBLAST GROWTH FACT	6.50e-58	
S	313	21.7	115	1	060487	BASIC FIBROBLAST GROWT	1.13e-49	
9	305	21.2	212	13	042407	FIBROBLAST GROWTH FACT	1.07e-47	
7	301	20.9	194	ဖ	P79150	KERATINOCYTE GROWTH FA	1.04e-46	
ω	274	19.0	252	Ξ	960680	FHF-4B.	4.11e-40	
σ	268	18.6	198	1	035988	RYUDOCAN CORE PROTEIN	1.16e-38	
10	265	18.4	59	4	016089	ACIDIC FIBROBLAST GROW	6.15e-38	
11	266	18.4	9	4	016588	ACIDIC FIBROBLAST GROW	3.53e-38	
12	264	18.3	70	7	054837	FIBROBLAST GROWTH FACT	1.07e-37	
13	260	18.0	196	13	Q9YH31	PUTATIVE FIBROBLAST GR	9.79e-37	
14	256	17.8	206	13	Q9YGD8	FIBROBLAST GROWTH FACT	8.90e-36	
15	257	17.8	243	13	Q9W6A1	FIBROBLAST GROWTH FACT	5.13e-36	
16	251	17.4	127	4	099517	FIBROBLAST GROWTH FACT	1.39e-34	
17	248	17.2	192	4	095830	FIBROBLAST GROWTH FACT	7.21e-34	
18	248	17.2	245	13	Q9W6A2	FIBROBLAST GROWTH FACT	7.21e-34	
19	236	16.4	200	13	P79925	FIBROBLAST GROWTH FACT	4.97e-31	
20	226	15.7	425	'n	076831	LET-756 PROTEIN.	1.09e-28	

1.87e-28	9.32e-28	1.34e-26	1.12e-25	9.25e-25	2.65e-24	1.74e-22	2.92e-22	8.50e-20	6.53e-19	1.80e-18	1.80e-18	2.65e-13	3.55e-05	1.90e-04	1.47e-03	1.08e-02	1.60e-02	1.08e-01	1.08e-01	1.57e-01	4.76e-01	3.30e-01	3.30e-01
KERATINOCYTE GROWTH FA	FIBROBLAST GROWTH FACT	FGF HOMOLOG.	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	R33683_2.	FIBROBLAST GROWTH FACT	FGF=ACMNPV ORF32.	FGF-19.	FIBROBLAST GROWTH FACT	BASIC FIBROBLAST GROWT	BASIC FIBROBLAST GROWT	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	CONSERVED PROTEIN.	HYPOTHETICAL 27.5 KD P	211AA LONG HYPOTHETICA	MITOCHONDRION ASPERGIL	POLYPROTEIN.	ORF8.	NADH-UBIQUINONE OXIDOR	DEVELOPMENTAL REGULATO	FH1/FH2 PROTEIN HOMOLO
077561	057341	P91672	014915	042278	060371	Q9YMH2	092401	095750	097573	016443	000527	035340	062682	P79685	027154	073554	Q9YEE7	037406	011979	087969	0922Q3	09000	P78621
9 6	13	Ŋ	4	13	4	14	14	4	ø	4	4	11	9	13	-	14	-	œ	14	7	œ	m	က
74	210	770	244	210	129	285	182	216	73	114	114	78	82	98	822	243	211	352	3443	346	330	980	1790
15.6	15.4	15.0	14.8	14.5	14.4	13.8	13.7	13.0	12.7	12.6	12.6	10.9	8.0	7.8	7.4	7.1	7.0	6.7	6.7	9.9	6.4	6.4	6.4
225	222	217	213	209	207	199	198	187	183	181	181	157	116	112	107	102	101	96	96	92	85	93	93
21	23	24	25	26	27	28	58	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

### ALIGNMENTS

RESULT ID O AC O	1LT 1 077767 077767;	••		130 AA.	AA.			
답답	01-NOV-1998 01-NOV-1998		Creat Last	l) quence	Created) Last sequence update)			
DT F	01-NOV-1999	01-NOV-1999 (TrEMBLrel.	12, Last annotatio	notati	annotation update)	(e)		
g N	BFGF.		erion (Fire	, rudribi	•			
SO	Canis famil	Canis familiaris (Dog).						
႘	Eukaryota; 1	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;	lata; Crani	ata;	'ertebrat	a; Mammalia	.; o	
0 2	Eutheria; Ca	Eutheria; Carnivora; Fissipedia; Canidae;	sipedia; Ca	nidae;	Canis.			
RP.	SEQUENCE FROM N.A.	M N.A.	*					
SC SC	TISSUE-ADRENAL GLAND;	WAL GLAND;						
КA	TROCHTA O.A.	TROCHTA O.A., JACOBS R.M., LAMARRE J.;	., LAMARRE	٦.,				
RI	"The role b	"The role bFGF in canine Hemangiosarcoma.	Hemangiosa	rcoma.	.`			
RL	Submitted (	Submitted (APR-1998) to the EMBL/GenBank/DDBJ	the EMBL/Ge	nBank/		databases.		
DR	EMBL; AF060	EMBL; AF060562; AAC35912.1;	.1;					
DR	HSSP; P09038; 1BFF	); 1BFF.						
R	PROSITE; PS(	PROSITE; PS00247; HBGF_FGF;	3F; 1.					
DR	PFAM; PF00167; FGF; 1.	57; FGF; 1.						
FŢ								
FI	NON_TER	130 130						
SO	EI .	.30 AA; 14902 MW;		DB6A90A4 CRC32;	RC32;			
õ	Query Match	35.4	3; Score 511;		DB 6: Le	Length 130;		
ž ž	Best Local Simil Matches 73;	Similarity 55.3%; 73; Conservative		o. 1.9 smatch	28		2; Gaps	S
g	1 FKDPKRI	FKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYLAM	PDGRVDGVREK	SDPHVR	LOLOAEER	SVVSIKGVCAN	NRYLAM	09
οy	68 YKKPKLI	YKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYLAM	PDGTVDGTRDR	SDOHIC	LOLSAESV	: : SEVYIKSTETO	GQYLAM	127
QQ	61 KEDGRLI	KEDGRLIASKCVTDECFFFERLESNNYNTYRSRKYSSWYVALKRTGQYKLGPKTGPGQ	ERLESNNYNTY	RSRKYS	SWYVAL	KRTGQYKLGPR	KTGPGO	118
ογ	128 DIDGLL)	DIDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRIHYGQ		ISKKHA	EKNWEVGL	KKNGSCKRGPRTI	RTHYGO	187
a	119 KAILFLPMSAKS	MSAKS 130						
ογ	188 KAILFLPLPVSS	::   LPVSS 199						

ä

196 AA.

PRT;

PRELIMINARY;

RESULT 2 ID P78443

Gaps

5,

Length 101;

```
MEDLINE; 90382254.
MITRANI E., GRUENBAUM Y., SHOHAT H., ZIV T.;
"Fibroblast growth factor during mesoderm induction in the early chick
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Archosauria, Aves;
Neognathae, Galliformes, Phasianidae, Phasianinae, Gallus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               71 PKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYLAMDTD 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          45 ERVSAMVKLOLQAEERGVVSIKGVSANRFLAMKEDGRLLALKCATEECFFFERLESNNYN 104
                                                                                                                                                                           1 PKRLYCKNGGFFLRINSDGKVDGAREKSDSYIKLQLQAEERGVVSIKGVCANRYLAMKDD 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
MEDLINE: 93246053.
BORJA A.Z., ZELLER R., MELJERS C.;
"Expression of alternatively spliced bFGF first coding exons and antisense mRNAs during chicken embryogenesis.";
Dev. Biol. 157:110-118(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2.7 5 PRELIMINARY; PRT; 115 AA. Q60487 PRELIMINARY; PRT; 115 AA. Q60487 CITEMBLED. 01, Created) 01-NOV-1996 (TrEMBLED. 01, Last sequence update) 01-NOV-1999 (TrEMBLED. 12, Last annotation update) BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT). Cavia porcellus (Gilnea pig). Eukaryota; Metazoa; Chordata; Craniata; Wertebrata; Mammalia;
                                                                                                                                    18; Mismatches 28; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        105 TYRSRKYSD--WYVALKRTGQYKPGPKTGPGQKAILFLPMSAKS 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61 GRLMALKWITDECFFFFRLESNNYNTYRSRKYSD--WYVALKR 101
                                                                                                                                                                                                                                                                                                                                                                                                              Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20; Mismatches 32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 24.0%; Score 346; DB 13;
Best Local Similarity 48.1%; Pred. No. 6.50e-58;
                                                                                              Score 382; DB 13;
Pred. No. 5.01e-67;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        146 AA; 16182 MW; 44C5274B CRC32;
                                                           1CD93BB0 CRC32;
                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Development 109:387-393(1990).
EMBL; M95706; AAA46616.1; -.
EMBL; X56804; CAA40139.1; -.
HSSP; P09038; ZBFH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PROSITE; PS00247; HBGF_FGF; 1.
PFAM; PF00167; FGF; 1.
PRINTS; PR00262; ILIHBGF.
                                                           101 AA; 11907 MW;
                                                                                                                                                                                                                                                                                                                                                                                                              01-NOV-1996 (TrEMBLrel. 01,
01-NOV-1996 (TrEMBLrel. 01,
01-NOV-1999 (TrEMBLrel. 12,
FIBROBLAST GROWTH FACTOR.
                                                                                              Query Match
Best Local Similarity 53.4%;
Matches 55; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE OF 52-85 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gallus gallus (Chicken)
PFAM; PF00167; FGF; 1.
                                      101
                                      101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        50;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 embryo.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                             SEQUENCE
                    NON_TER
NON_TER
                                                                                                                                                                                                                                                                                                                                                           T 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SSEPPER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
    SHIR
                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE; 89184522.
PRATS H., KAGHAD M., PRATS A.C., KLAGSBRUN M., LELIAS J.M.,
LIAUZUN P., CHALON P., TAUBER J.P., AMALRIC F., SMITH J.A., CAPUT D.;
"High molecular mass forms of basic fibroblast growth factor are
initiated by alternative CUG codons.";
Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  66 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSABSYGEVYIKSTETGQYL 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            65 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       125 AMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYT--SWYVALKRTGQYKLGSKTGP 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                               TISSUE=BRBRYO;
SUZUKI A.S., TABATA T., SAKAGUCHI K., TAKABATAKE T., TAKESHIMA K.,
KANEDA T.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "Serial expression of the genes in a mesodermalizing ectoderms of early Cynops gastrula.";
submitted (NOV-1996) to the EMBL/GenBank/DDBJ databases.
EMBL; D89443; BAA13958.1; -.
HSSP; P09038; 2BFH.
PROSITE; PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BASIC FGF (FRAGMENT).
Cynops pyrrhogaster (Japanese common newt).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Amphibia;
Batrachia; Caudata; Salamandroidea; Salamandridae; Cynops.
                                                                                                                                    Della Supranta; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                 SEQUENCE OF 81-168 FROM N.A.
MEDLINE; 93038590.
WATSON R., ANTHONY F., PICKETT M., LAMBDEN P., MASSON G.M.,
THOMAS E.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 509; DB 4; Length 196
Pred. No. 6.40e-100;
23; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2.T 3
P79706 PRELIMINARY; PRT; 101 AA.
P79706; P79706; (TEMBLrel. 03, Created)
01-MAY-1997 (TrEMBLrel. 03, Last sequence update)
01-NOV-1999 (TEMBLrel. 12, Last annotation update)
                      01-MAY-1997 (TrEMBLrel. 03, Created)
01-MAY-1997 (TrEMBLrel. 03, Last sequence update)
01-MOV-1999 (TrEMBLrel. 12, Last annotation update)
21 KD BASIC FIBROBLAST GROWTH FACTOR (BFGF).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         49B75E39 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21203 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PROSITE; PS00247; HBGF_FGF; 1. PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity 54.5%;
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRINTS; PR00262; IL1HBGF.
PRINTS; PR00263; HBGFFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       183 GOKAILFLPMSAKS 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           196 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
```

g

쉱

ò

ŏ

ID DDT DDT DDT RRN RRD RRT RRT DRR RRD DRR DRR

SOR REPRESENTATION SOR REPRESENTATION SOR REPRESENTATION OF THE PROPERTY OF TH

Length 146;

Indels

:

194 AA

```
PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TISSUE=BRAIN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              089096
089096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                         7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OHUCHI H., NRKAGAWA T., YAMAMOTO A., ARAGA A., OHTA T., ISHIMARU Y., YOSHIOKA H., KUWANA T., NOHNO T., YAMASAKI M., ITOH N., NOJI S.; "The mesenchymal factor, FGF10, initiates and maintains the outgrowth of the chick limb bud through interaction with FGF8, an apical bevelopment 124.2235-2244(1997).

EMBL: D86331: BAA24945.1; "BASSP; PO3968; IBAR.

PFAM: PF00167; FGF: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Archosauria; Aves;
Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.
                                                                                                                                                                                                                                                                                                                                                                                                                                81 VR-KR-KL-Y-SYNKYFLKIEKNGKVSGTKKENCPFSILEITSVEIGVVAVKSIKSNYYL 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AMNKKGKVYGSKEFNSDCKLKERIEENGYNTYASLNWKHNGRQMFVALNGRGATKRGQKT 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 GFFLRIHPDGRVDGVREKTDPHIKHNFKPKA-EELCYQGSLSNRYLAMKEDGRLLASKCV 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            22 LLLFLVSSVPVTCHDLGQDMLSPEATNSSSSSSSSFPSSFSSPSSAGRHVRSYN-HLQGD 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 21.2%; Score 305; DB 13; Length 212; Best Local Similarity 32.7%; Pred. No. 1.07e-47; Matches 64; Conservative 46; Mismatches 76; Indels 10;
                                                                                                                                                                                                                                                                                                                                                            'n
                                                                                                                                                                                                                                                                                                        Length 115;
                                                                                                                                                                                                                                                                                                        Score 313; DB 11; Length 11 Pred. No. 1.13e-49; 22; Mismatches 31; Indels
                                                                                                           Submitted (JAN-1996) to the EMBL/GenBank/DDBJ databases.
EMBL; L75974; AAA85394.1; -.
HSSP; P09038; ZBFH.
PROSITE; PS00247; HBGF_FGF; 1.
PRAM: PF00167; FGF; 1.
NON-TER
Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           140 NEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60 TDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLG 98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FRANS, FRONZOS, HEGFEGF.
PRINTS; PR00263; HEGFEGF.
SEOUENCE 212 AA; 23631 MW; C8AB1883 CRC32;
                                                                                                                                                                                                                                 NON_TER 1 SEQUENCE 115 AA: 13495 MW; 4B12914A CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            212 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-JAN-1998 (TrEMBLrel. 05, Created)
01-JUN-1998 (TrEMBLrel. 06, Last seq
01-NOV-1999 (TrEMBLrel. 12, Last anno
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FIBROBLAST GROWTH FACTOR 10. Gallus gallus (Chicken).
                                                                                                                                                                                                                                                                                                        Query Match 21.7%;
Best Local Similarity 44.6%;
Matches 45; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HYGOKAILFLPLPVSS 199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               197 RRKNTSAHFLPMVVMS 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRELIMINARY;
                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A. MEDLINE; 97330690.
                                                                                             RICCIARDELLI C.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LT 6
042407
042407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
SO PRE RECEIVED BY SO STAND BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        å
```

```
WEDLINE; 96226403.

WA MEDLINE; 96226403.

WA CHARTAN H., CHANG W.Y., SUGIMOTO Y., SHIDAIFAT F., KULP S.K.,

A BRUEGGEMEIRR R.W., LIN Y.C.;

R "Reratinocyte growth factor (RGF/FGF-7) has a paracrine role in canine

RT prostate: molecular cloning of mRNA encoding canine KGF.";

DN Cell Blol. 15.247-254 (1996).

R PSD Cell Blol. 15.247-254 (1996).

R PSD PSD 230; 2AFG.

DR PROSTEE; PSO0247; HBGF_FGF; 1.

PR PRAM: PFO0167; FGF; 1.

DR PRAM: PFO0167; FGF; 1.

DR PRINTS; PRO0262; ILLHBGF.

SQ SEQUENCE 194 AA; 22476 MW; 2B71A8ED CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |: ||:| ||:| ||: ||||||| ||: : ||:|: ||:| ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      80 LYCRQG-YYLQMHPDGALDGTKDDSTNSTLFNLIPVGLRVVAIQGVKTGLYIAMNGEGYL 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   128 YAKKECNEDCNFKELILENHYNTYASAKWTHSGGEMFVALNQKGVPVRGKKTKKEQKTAH 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      69 LFCRTQ-WYLRIDKRGKVKGTQEMKNSYNIMEIRTVAVGIVAIKGVESEYYLAMNKEGKL 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                **MEDLINE; 98267141.

YAMAMOTO S., MIKAMI T., OHBAYASHI N., OHTA M., ITOH N.;

YAMAMOTO S., MIKAMI T., OHBAYASHI N., OHTA M., ITOH N.;

"Structure and expression of a novel isoform of mouse FGF homologous factor (FHF)-4.";

EACH.; ABO08908; BAA31544.1;

EMBL; ABO08907; BAA31544.1;

EMBL; ABO08907; BAA31543.1;

PROSITE; PS00247; HBGF_FGF; 1.

PROSITE; PS00247; HBGF_FGF; 1.

PROMITE; PS00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ë,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŝ
01-MAY-1997 (TIEMBLrel. 03, Created)
01-MAY-1997 (TIEMBLrel. 03, Last sequence update)
01-MAY-1999 (TEMBLrel. 12, Last annotation update)
KERATNOCYTE GROWTH FACTOR.
Canis familiaris (Dog).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Carnivora; Fissipedia; Canidae; Canis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mammalia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FHF-4B.
Rattus norvegicus (Rat), and Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Match 19.0%; Score 274; DB 11; Length 252; Local Similarity 37.5%; Pred. No. 4.11e-40; es 48; Conservative 26; Mismatches 49; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 301; DB 6; Length 194; Pred. No. 1.04e-46; 28; Mismatches 47; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                252 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-NOV-1998 (TrEMBLrel. 08, 01-NOV-1998 (TrEMBLrel. 08, 01-NOV-1999 (TrEMBLrel. 12,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 20.9%;
Best Local Similarity 38.6%;
Matches 49; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           188 FLPMAIT 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       192 FLPLPVS 198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
```

ä

RESULT

US-09-121-017B-17.rspt

셤 ŏ 셤 ö RESULT 1D 03 AC 03 DT 01 DT 01 DT 01 DE RY

ς,

Gaps

э; Э

Length 59; 1; Indels

```
ZHAO X.M., YEOH T.K., HIEBERT M., FRIST W.H., MILLER G.G., "The expression of acidic fibroblast growth factor (heparin-binding growth factor-1) and cytokine genes in human cardiac allografts and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
MEDLINE; 92202857.
LI Y.L., KHA H., GOLDEN J.A., MIGCHIELSEN A.A.J., GOETZL E.J.,
TURCK E.J.;
"An acidic fibroblast growth factor protein generated by alternate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-JUN-1998 (TrEMBLrel. 06, Created)
01-JUN-1998 (TrEMBLrel. 06, Last sequence update)
01-JUN-1999 (TrEMBLrel. 12, Last annotation update)
FIBROBLAST GROWTH FACTOR-1 (FRAGMENT).
Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutharyota; Redetia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 266; DB 4; Length 60;
Pred. No. 3.53e-38;
6; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                            SDDFELSGSGDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQH 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
STRAIN-C3H/HEN; TISSUE-LIVER;
ZHANG Y.-X., HACKSHAW K.V.;
SUbmitted (JUL-1997) to the EMBL/GenBank/DDBJ databases.
EMBL; AF012925; AAB94020.1; --
HSSP; P05230; ZAXM.
                                                                                                                                                                                                                                                                                                                                  13 TEKFNLP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQH 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13 TEKFNLP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHTD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01, Last sequence update)
12, Last annotation update)
                                                                                                                                                                                  Score 265; DB 4; 1
Pred. No. 6.15e-38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6CCC7DFF CRC32;
                                                                                                             1C932B1D CRC32;
                                                                                                                                                                                                                                                          5; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-NOV-1996 (TIEMBLIEL. 01, Created)
01-NOV-1996 (TIEMBLIEL. 01, Last sequence u)
01-NOV-1999 (TIEMBLIEL. 12, Last annotation
ACIDIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              splicing acts like an antagonist.";
J. Exp. Med. 175:1073-1080(1992).
ExBL; S67293; AAE29058.1;
EXBL; X65779; CAA46662.1;
EXBL; P05230; ZAXM.
PPAM; PF00167; FGF; 1.
NON_TER 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Transplantation 56:1177-1182(1993)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         18.4%;
ilarity 77.6%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60 AA; 6697 MW;
                                                                                                                                                                              18.4%;
ilarity 80.9%;
Conservative
                                                                                                          59 AA; 6595 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRELIMINARY;
                                                                                                                                            HSSP; P05230; 2AXM.
PFAM; PF00167; FGF;
NON_TER 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity
nes 38; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A. MEDLINE; 94069734.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NON_TER
SEQUENCE
                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11 11
Q16588
Q16588;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       054837;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               T 12
054837
                                                                                                                                                                                                                                                                                                                                                                                                      55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TRESCRIPTOR OF THE SOLUTION OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESOLT

1D

05

DT

06

DT

07

DT

07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
       SER
                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RY SEQUENCE FROM N.A.

RC STRAIN-C3H/AN, AND 129SVJ;

RX MEDLINE; 97420681.

RA TSUZUKI S., KOJIMA T., KATSUMI A., YAMAZAKI T., SUGIURA I., SAITO H.;

RA TSUZUKI S., KOJIMA T., KATSUMI A., YAMAZAKI T., SUGIURA I., SAITO H.;

RT TISSUE-Specific expression of the mouse ryudocan gene.";

RL J. Blochem. 122:17-24(1997).

CC '-- FUNCTION: CELL SURRACE PROTEGLYCAN THAT BEARS BOTH HEPARAN

CC SULRATE AND CHONDROITIN SULFATE AND THAT LINKS THE CYTOSKELETON TO

CC SULRATE AND CHONDROITIN SULFATE AND THAT LINKS THE CYTOSKELETON TO

CC SULLATE MATRIX. BINDS BASIC FIBROBLAST GROWTH FACTOR.

DR EMBL, D8957; BAA22135.1; -

DR EMBL, D8957; BAA22135.1; -

DR PROSITE; PS00964: SYNDECAN; 1.

DR PROSITE; PS0134; SYNDECAN; 1.

PROSITE; PS0134; Syndecan; 1.

POTENTIAL.

FT SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ;
6
                                                                                                                 LYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYLAMDTDGLL 133
                                                                        139 YPSELFTPECKFKESVFENYYVIXSSMLYRQQESGRAWFLGLNKEGQVWKGNRVKKTKPA 198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE; 94069734.
ZHAO X.M., YEOH T.K., HIEBERT M., FRIST W.H., MILLER G.G.;
The expression of acidic fibroblast growth factor (heparin-binding growth factor-1) and cytokine genes in human cardiac allografts and cells.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mammalia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 198;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 268; DB 11; Length 1>u, Pred. No. 1.16e-38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-NOV-1996 (TIEMBLIEL. 01, Created)
01-NOV-1996 (TIEMBLIEL. 01, Last Sequence update)
01-NOV-1999 (TIEMBLIEL. 12, Last annotation update)
ACIDIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                 035988 PRELIMINARY; PRT, 198 AA. 035988; 01-JAN-1998 (TrEMBLrel. 05, Created) 01-JAN-1998 (TrEMBLrel. 05, Last sequence update) 01-NOV-1999 (TrEMBLrel. 12, Last annotation update) RYUDOCAN CORE PROTEIN PRECURSOR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              POTENTIAL.
FC67B0E5 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         59 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Transplantation 56:1177-1182(1993).
EMBL; S67294; AAB29059.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              198 P
21482 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 18.6%;
Best Local Similarity 77.1%;
Matches 54; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                198 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       111111111
56 DDFELSGSGD 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 57 DDFELSGSGD 66
                                                                                                                                                                                                                    199 AHFLPKPL 206
                                                                                                                                                                                                                                                                 ||| |:
190 ILFLPLPV 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LT 10
Q16089
Q16089;
```

ñ

Gaps

3;

RESULT

δ

Length 206;

23375 MW; 818267C3 CRC32;

S

```
206 AA;
     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                LT 15
Q9W6A1
Q9W6A1;
                                                                                                                                                                                                                                                                                                                g
                                                                                                                                      g
                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     合
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                           ö
                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ä;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE; 99096461.
RESCAN P.Y.;
"Identification of a fibroblast growth factor 6 (FGF6) gene in a non-
mammalian vertebrate: continuous expression of FGF6 accompanies muscle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      71 KRLRRLYCNVGIGFHLQVLPDGRIHGMHSES-RYSLLEISPVERGVVCMFGVQSGLFLAM 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    130 NSKGRLFGSKYFSDECKFKEMLLPNNYNAYESWRYPGM--YIALSKNGRAKKGNKVSPTM 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 260; DB 13; Length 196;
Pred. No. 9.79e-37;
31; Mismatches 48; Indels 4; Gaps
                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Oncorhynchus mykiss (Rainbow trout) (Salmo gairdneri).
Sukaryota; Metazoo; Chordata; Craniata; Vertebrata; Actinopterygii;
Neopterygii; Teleostei; Euteleostei; Protacanthopterygii;
Salmoniformes; Salmonidae; Oncorhynchus.
                                                                                                                                                                                                               01-MAY-1999 (TrEMBLrel. 10, Created)
01-MAY-1999 (TrEMBLrel. 10, Last sequence update)
01-NOY-1999 (TrEMBLrel. 12, Last annotation update)
PUTATIVE FIBROBLAST GROWTH FACTOR 4.
NOtophthalmus viridescens (Bastern newt) (Triturus viridescens)
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Amphibia;
Batrachia; Caudata; Salamandroidea; Salamandridae; Notophthalmus.
                                                                                 ö
                                                      Length 70;
                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                      WEI Y.;
"Putative Newt Fibroblast Growth Factor-4.";
Submitted (OCT-1996) to the EMBL/GenBank/DDBJ databases.
EMBL, P09038; 1BFF.
PROSITE; PS00247; HBGF_FGF; 1.
SEQUENCE 196 AA; 22033 MW; 455E08A3 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Last sequence update)
Last annotation update)
                                          Score 264; DB 11; L
Pred. No. 1.07e-37;
                                                                                                                       66 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQH 101
                                                                                                          35 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQH 70
                            15AlbESE CRC32;
                                                                                                                                                                                         196 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               206 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-MAY-1999 (TrEMBLrel. 10, Created)
01-MAY-1999 (TrEMBLrel. 10, Last sequence u
01-NOY-1999 (TrEMBLrel. 12, Last annotation
FIBROBLAST GROWTH FACTOR 6-RELATED PROTEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              fiber hyperplasia.";
Biochim. Biophys. Acta 1443:305-314(1998),
Binchim. Biophys. Acta 145:305-314(1998),
BEL; Y16850; CAA76422.1;
HSSP; P09038; 1BFF.
PROSITE; PS00247; HBGF_FGF; 1.
                                                                                                                                                                                         PRT;
PFAM; PF00167; FGF; 1.
NON_TER 70
SEQUENCE 70 AA; 7677 MW;
                                                   Query Match
Best Local Similarity 97.2%;
Matches 35; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ouery Match 18.0%;
Best Local Similarity 34.6%;
Matches 44; Conservative
                                                                                                                                                                                         PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               188 TVTHFLP 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          188 KAILFLP 194
                                                                                                                                                                           СТ 13
Q9YH31
Q9YH31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LT 14
Q9YGD8
Q9YGD8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ESULT
                                                                                                                                                                           RESULT
  FT SS
                                                                                                           음
                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
```

```
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ω
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Archosauria; Aves;
Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.
                                                                                                                                                                                                                                                       81 KRVRRLYCNAGIGFHLQVLPDGRINGVHN-ENQYSLIEISTVERGVVSLYGVRSELFVAM 139
                                                                                                                                                                                                                                                                                                                              140 NSRGRLYGTTVFHDECKFRESMLPNNYNAYESSVY--RGSYIALNKHGRLKRGKKATTAM 197
                                                                                                                                                                                                                                                                                                                                                                77 LF-SQQEYFLQMHPDGTIDGTKDENSDYTLFNLIPVGLRVVAIQGVKAGLYVAMNAEGYL 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               136 YSSDVFTPECKFKESVFENYYVIYSSTLYRQQESGRAWFLGLNKEGQIMKGNRVKKTKPS 195
                                                                                                            25 VLLGFIVGIVSSYPIPSRTNA-TLLEKRW--ETLFS-RSILGISGEKSDLNWESDYLLGI 80
                                                                                                                                              SEQUENCE FROM N.A.

SEQUENCE FROM N.A.

MEDLINE; 99065510.

MUNOZ-SANJUAN I., SIMANDL B.K., FALLON J.F., NATHANS J.;

MUNOZ-SANJUAN I., SIMANDL B.K., FALLON J.F., NATHANS J.;

MUNOZ-SANJUAN I., SIMANDL B.K., FALLON J.F., NATHANS J.;

EXPERSION of chicken fibroblast growth factor homologous factor (FKF) and involvement of FHF-2 in chicken limb development and involvement of FHF-2 in chicken limb development.";

Development 126:409-421(1999).

EMBL, AF108754; AAD31575.1;

PROSITE; PSO0247; HBGF_FGF; I.

PROSITE; PSO0247; HBGF_FGF; I.

PROSITE; PSO0247; HBGF_FGF; I.
                                                           ..
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ς,
Ω
  Score 256; DB 13; Length 20
Pred. No. 8.90e-36;
48; Mismatches 78; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            31; Mismatches 48; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-NOV-1999 (TrEMBLrel. 12, Created)
01-NOV-1999 (TrEMBLrel. 12, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
FIBROBLAST GROWTH FACTOR 12 ISOFORM A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 257; DB 13;
Pred. No. 5.13e-36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Search completed: Tue Aug 29 15:51:54 2000 Job time: 92 secs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
     17.8%;
28.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity 34.4%;
Matches 44; Conservative
Query Match
Best Local Similarity 28.3%;
Matches 53; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gallus gallus (Chicken)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |:| |:
190 ILFLPLPV 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        196 SHFVPKPI 203
                                                                                                                                                                                                                                                                                                                                                                                                                                          198 TVTHFLP 204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             188 KAILFLP 194
```

A. A. 7

****	(MT)
****	
***	''
***	
***************************************	
****	''    -
***	' '
****	
***	'
***	
***	
*	

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

protein - protein database search, using Smith-Waterman algorithm MasPar time 7.50 Seconds 631.534 Million cell updates/sec Tue Aug 29 15:56:15 2000; MPsrch\_pp

bular output not generated.

: uo u

( پي

>US-09-121-01/B-19 (1-200) from US09121017B.pep 1438 1 MAPARLFALLLFFVGGVAES......PRTHYGOKAILFLPLPVSSD 200 Description: Perfect Score:

Sequence:

PAM 150 Gap 11 Scoring table:

Searched:

188963 seqs, 23686106 residues

Minimum Match 0% Listing first 45 summaries Post-processing:

a-geneseq36 1:geneseqp Database:

Variance 131.454; scale 0.242 Mean 31.778; Statistics:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

		dР					
esult No.	Score	Query	Length DB	DB	QI	Description	Pred No
	1 1 1 1 1			1			
	985	68.5	154	-	W92283	Human beta-endothelial	2.14e-8
7	985	68.5	154	Н	W75414		2.14e-8
m	985	68.5	154	-	W06816	Human endothellal cell	2.14e-8
4	985	68.5	154		W04805	Human beta-endothelial	2.14e-8
S	985	68.5	155		W75415	Human endothelial cell	2.14e-8
9	985	68.5	155	-	W75711		7
7	985	68.5	155	Н	R80776		2.14e-8
80	985	68.5	155	Н	P70482	Sequence encoded by co	2.14e-8
σ	985	68.5	155	-	P94037		2.14e-8
10	985	68.5	155	Н	W53022	Fibroblast growth fact	2.14e-8
11	985	68.5	155	Н	R70812		2.14e-8
12	985	68.5	155	~	W92291	Human endothelial cell	2.14e-8
13	985	68.5	165	~	R05785	Human bECGF encoded by	2.14e-8
14	985	68.5	168	Н	W06818	Human endothelial cell	2.14e-8
15	. 983	68.4	134	Н	W75413	Human alpha-endothelia	3.43e-8
16	983	68.4	134	Н	W92282	Human alpha-endothelia	3.43e-8
17	983	68.4	134	Н	W04807	Human alpha-endothelia	3.43e-8
18	984	68.4	140	Н	W04806	Human acidic fibroblas	2.71e-8
19	984	68.4	140	-	R74647	Human recombinant aFGF	2.71e-8
20	984	68.4	140	<del>, -</del> 1	R34497	Human acidic Fibroblas	2.71e-8
21	984	68.4	140	Н	P70995	Sequence of human prot	2.71e-8
22	984	68.4	140	Н	R25914	Human acidic fibroblas	2.71e-8
23	984	68.4	140	Н	P90068	Human acid fibroblast	2.71e-8

ä

3; Gaps

Score 985; DB 1; Length 154; Pred. No. 2.14e-86; 5; Mismatches 1, Indels

Query Match 68.5%; Best Local Similarity 93.8%; Matches 137; Conservative

В ò g ò

2.71e 86 2.71e 86 4.54e 85 4.54e 85 7.61e 84 7.61e 83 3.11e 83 3.11e 83 1.27e 81 1.33e 81 1.33e 81 1.33e 81 1.33e 81 1.33e 81 1.33e 81 1.33e 79 1.83e 79	1.83e-79 1.83e-79 2.32e-79 2.42e-78 2.42e-78
Human acidic fibroblas Human aFGF encoded by Fibroblast growth fact Human endothelial cell 9 N-terminal residue d aFGF mutein #2. Recombinant human Alal Human (GJy93) aFGF ana Fibroblast growth fact aFGF mutein #3. 12 N-terminal residue Human acidic fibroblas Bovine acidic fibroblas Bovine acidic fibroblas Bovine fibroblas Bovine fibroblas	Bovine acidic Fibrobia Bovine acidic fibrobias Recombinant human muta Recombinant bovine Ala Bovine (Ala47, Gly93) a Chimeric acid/basic fi
R10527 R05789 W71383 W71383 W71383 R05817 R25418 R25419 R25419 R25419 R05935 R06069 R74648 R1328	R34496 R25915 P90074 R25569 W00560
1120 1120 1120 1120 1120 1120 1120 1120	140 141 141 141 136
00000000000000000000000000000000000000	633.7 633.7 63.0 63.0 63.0
9988 9989 9989 9989 9989 9989 9989 998	917 916 906 906 900
. 4888888888888888888888888888888888888	0 4 4 4 4 4 4 5 0 1 0 2 6 4 5 5

### ALIGNMENTS

Gaps

÷,

g ò 

```
growth factor - useful to regenerate or treat damaged blood vessels disclosure; Fig 8: 28pp; English.

Bovine beta-endothelial cell growth factor (beta-ECGF; W03999) having a mol.wt. of 20 kD can be purified at least 16300 fold from bovine brain using heparin-Sepharose affinity chromatography. ECGF is useful for, among other purposes, diagnostic applications and has potential in the treatment of damaged blood vessels or other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            69 YIKSTETGQYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKN 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                115 YIKSTETGQYLAMDIDGLLYGSQIPNEECLFLERLEENHYNTYISKKHARKNWFVGLKKN 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           endothelial cell-lined structures. Human ECGF (T37503) or fragments may be obtained using oligonucleotides (T37504 and T37508 to T37509) whose design is based on the sequence of bovine alpha- and beta-ECGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12 TEKFNLP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV 68
                                                                                                     claim 1; Column 16; 22pp; English.

Human recombinant endothelial cell growth factors (ECGF) beta
(W06816) and alpha (W06817) differ only at their N-terminal ends.
They can be produced in transformed prokaryotic or eukaryotic host
cells using DNA sequences (T45983 and T45984, respectively) derived
from the complete human ECGF cDNA (T45885). Large quantities of
the ECGFs are produced by culturing the host cells and recovering
the proteins. ECGFs have utility in the growth and amplification
of endothelial cells in culture. They can potentially be used to
tread damaged blood vessels and other endothelial cell-lined
sequence 154 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            29-DEC-1996 (first entry)

Human beta-endothelial cell growth factor.

Human beta-endothelial cell growth factor.

Brodthelial cell growth factor; ECGF; blood vessel; regeneration; heparin-Sepharose affinity chromatography; probe; oligonucleotide; EGF; fibroblast growth factor.
                                                               - for treating
                                                                                                                                                                                                                                                                                                                                                                                 Score 985; DB 1; Length 154;
Pred. No. 2.14e-86;
5; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 985; DB 1; Length 154;
Pred. No. 2.14e-86;
5; Mismatches 1; Indels
                                                             Recombinant human endothelial cell growth factors
  Maciaq T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  27-NOV-1991; US-799859.
03-NOV-1994; US-334884.
(RHON ) RHONE POULENC RORER PHARM INC.
Burgess W, Maciag T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   175 GSCKRGPRTHYGQKAILFLPLPVSSD 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           129 GSCKRGPRTHYGQKAILFLPLPVSSD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      standard; Protein; 154 AA
    Јауе М,
                                                                                                                                                                                                                                                                                                                                                                                     68.5%;
93.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 68.5%;
Best Local Similarity 93.8%;
Matches 137; Conservative
                                                                                     etc.
                                                                                                                                                                                                                                                                                                                                                                                                                             137; Conservative
  Drohan WN,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    03-MAR-1986; US-835594
18-DEC-1987; US-134499
29-APR-1991; US-693079
                                                                                   damaged blood vessels,
                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   03-MAR-1986; 835594
  Burgess W, Drohan WPI; 96-505421/50.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI; 96-412132/41
                          WPI; 96-50541,
N-PSDB; T45983
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N-PSDB; T37503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    W04805
                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Compositions for promoting wound healing - containing endothelial
cell growth factor polypeptides
Claim 1: Column 16: 23pp. English.
This sequence represents the amino acid sequence of the mature human
beta-endothelial cell growth factor (b-ECGF). This amino acid sequence
is identical to the alpha-ECGF but the beta sequence contains an extra
20 N-terminal amino acids. The sequence was isolated from a human brain
stem cell cDNA library using a probe designed based on fragments of the
bovine ECGF (see W75416-W75418). The ECGF protein can be used in
compositions for promoting wound healing. ECGF is also used to grow
sequence 154 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           69 YIKSTETGQYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKN 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            115 YIKSTETGQYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKN 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12 TEKFNLP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV
                                                                                                                                                                                                                stem; probe;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1; Indels
                                                                                                                                                                                    Human beta-endothelial cell growth factor.
Human; endothelial cell growth factor; ECGF; brain stem;
hybridisation; bovine; wound healing; prosthetic device.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 985; DB 1; I
Pred. No. 2.14e-86;
5; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17-MAR-1997 (first entry)
Human endothelial cell growth factor-beta.
Endothelial cell growth factor-beta; ECGF-beta.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Burgess W, Drohan WN, Jaye M, Maciag T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (RHON ) RHONE POULENC RORER PHARM INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (RHON ) RHONE-POULENC RORER PHARM INC
                        175 GSCKRGPRTHYGQKAILFLPLPVSSD 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       175 GSCKRGPRTHYGOKALLFLPLPVSSD 200
129 GSCKRGPRTHYGQKAILFLPLPVSSD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GSCKRGPRTHYGQKAILFLPLPVSSD 154
                                                                                                                             Ä.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   standard; Protein; 154 AA.
                                                                                                                           standard; protein; 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Match 68.5%;
Local Similarity 93.8%;
                                                                                                                                                                    (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         137; Conservative
                                                                                                                                                                                                                                                                                                                                                                              18-DEC-1987; US-134499.
29-APR-1991; US-693079.
27-NOV-1991; US-799859.
03-NOV-1994; US-334884.
07-JUN-1995; US-472964.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-693079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-799859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          03-NOV-1994; US-334884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .US-472964
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 98-594032/50.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens.
US5571790-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     03-MAR-1986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             18-DEC-1987;
29-APR-1991;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         27-NOV-1991;
                                                                                                                                                                                                                                                                                                                                                             03-MAR-1986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       03-MAR-1986;
                                                                                                                                                                  02-MAR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                07-JUN-1995;
                                                                                                                                                                                                                                                                            US5827826-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  05-NOV-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                     W75414 s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           T 3
```

Matches

g ò

129

g

ó

RESULT

Gaps

.; 3

```
This sequence represents the complete amino acid sequence of the human endothelial cell growth factor (ECGF). The protein is further processed to generate the beta-ECGF (starting from Ala at position 2; W75414) and alpha-ECGF (starting from the Asn at position 22; W75413). When the beta-ECGF is cleaved with trypsin, the resulting N-terminal sequence is similar to the N-terminal sequence of acidic fibroblast growth factor (a-FGF). The sequence was isolated from a human brain stem cell cDNA library using a probe designed based on fragments of the bovine ECGF (see W75418). The ECGF protein can be used in compositions for promoting wound healing. ECGF is also used to grow cells on a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ä
YIKSTETGQYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKN 128
                                                                                  SS SDDFELSGSGDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       70 YIKSTETGQYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKN 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       13 TEKFNLP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV 69
                                                                                                                                                                                                                                                                                                                                                                                                            'note= "sequence of human fibroblast growth factor
is homologous to the protein whose sequence
starts at this position"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Compositions for promoting wound healing - containing endothelial cell growth factor polypeptides
Example: Fig 8: 23pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ÷,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "corresponds to alpha-ECGF (W75413)"
                                                                                                                                                                                                                                                                                                                                                 Length 155;
                                                                                                                                                                                                                                                             02-MAR-1999 (first entry)
Human endothelial cell growth factor precursor protein.
Human; endothelial cell growth factor; ECGF; brain stem;
hybridisation; bovine; wound healing; prosthetic device.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 985; DB 1; Le
Pred. No. 2.14e-86;
5; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (RHON ) RHONE-POULENC RORER PHARM INC.
Burgess W, Drohan WN, Jaye M, Maciag T;
WPI: 98-594032/50.
N-PSDB; V34350.
                                                                                                                                                 175 GSCKRGPRTHYGQKAILFLPLPVSSD 200
                                                                                                                                129 GSCKRGPRTHYGQKAILFLPLPVSSD 154
                                                                                                                                                                                                     .r 5
W75415 standard; Protein; 155 AA.
W75415;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ouery Match 68.5%;
Best Local Similarity 93.8%;
Matches 137; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-799859.
US-334884.
US-472964.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-743261.
US-835594.
US-134499.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-693079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  22.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   prosthetic device
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               27-NOV-1991;
03-NOV-1994;
07-JUN-1995;
                                                                                                                                                                                                                                                                                                                                Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              04 -NOV-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18-DEC-1987;
29-APR-1991;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  03-MAR-1986;
                                                               69
                                                               셤
                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                     8888888888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    පි
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                ò
                                                                                                ò
                                                                                                                                                                  ç
```

```
Fibroblast growth factor mutein and DNA - having reduced receptor binding and able to bind heparin, useful for treating and regulating the binding and able to bind heparin, useful for treating and regulating binding and able to bind heparin, useful for treating and regulating Theparin-related disorders e.g. thrombosis

Ensclosure; Page 52; 71pp; Brogish.

This is the amino acid sequence of fibroblast growth factor-1

(FGF-1). Claimed DNA molecules of the invention encode FGF mutein polypeptides (see W75711-20) that show reduced FGF receptor binding activity but which retain the ability to bind heparin. For FGF-1

Controlly acid residues with an optional further replacement of the Cys residues to reduce aggregation. The mutein the Glu-102 residue. The mutein may be further modified by the Glu-102 residues to reduce aggregation. The mutein is obtained by site-specific or site-directed mutagenesis of FGF-1

CNA, incorporation of the mutated DNA into a vector and expression in host cells. The FGF muteins are used to treat heparin-related clisorders, such as excessive bleeding induced by heparin.

Cophthalmic disorders and heparin-associated thrombocytopenia and convence of the CAS and the convence of the conven
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SS SDDFELSGSGDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       70 YIKSTETGQYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKN 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "Glu-102 may be replaced by another amino acid (Claim 7), preferably Ala, Gly or Ser"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  13 TEKFNLP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "Asn-107 may be replaced by another amino acid (Claim 2), preferably Ala, Phe, Ser, Gly, Met, Leu or Tyr, especially Ala, Gly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "Asn-110 may be replaced by another amino acid (Claim 1), preferably Ala, Phe, Ser, Gly, Met, Leu or Tyr, especially Ala, Gly or Ser"
                                                                                                                                                                                                                                                                       07-DEC-1998 (first entry)
Fibroblast growth factor-1.
Fibroblast growth factor-1; FGF-1; mutein; protein engineering; heparin; thrombosis; thromocytopenia; ophthalmic disorder; human; therapy.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .
m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 __note= "Phe-100 is replaced by another amino a
acid (Claim 3), preferably Ala, Phe, S
Gly, Met, Leu or Tyr, especially Ala,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 985; DB 1;
Pred. No. 2.14e-86;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5; Mismatches
                                       175 GSCKRGPRTHYGQKAILFLPLPVSSD 200
130 GSCKRGPRTHYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             130 GSCKRGPRTHYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             03-MAR-1998; JO0878.
03-MAR-1997; US-040708.
(EISA ) EISAI CO LTD.
Kalyanaraman R. Kawai T, Zhu H;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  or Ser"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           or Ser'
                                                                                                                                                                                                                        standard; Protein; 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             68.5%;
llarity 93.8%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Misc_difference 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Misc_difference 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Misc_difference 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Misc_difference 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ophtna....thrombosis. They ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          98-495843/42.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               137;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                    M75711 8
                                                                                                                                                                                                                                                               W75711;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                    RESCRIPTION WAS AN AMERICAN SOCIOL OF THE STREET OF THE ST
염
                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             q
```

ä

RESULT

οχ

```
115 YIKSTETGQYLAMDIDGLLYGSQIPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKN 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        70 YIKSTETGQYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKN 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      inserts, a specific oligoniclectide was designed. This coligoniclectide was designed. This coligoniclectide was based upon a partial AA sequence analysis of the amino terminus of ECGF (see P70480 and P70481). Fig 3c sets forth for comparison the AA sequence of cyanogen bromide-cleaved bovine alpha and beta ECGF (P70834). The two clones that were isolated, ECGF clones I and 29, were analysed in further detail. The nuclectide sequence of these clones and the AA sequence deduced from the nuclectic acid sequence is shown in Fig 8 (see N70788 and P70482).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               13 TEKFNLP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV 69
                                                                                                                                                                                                                                                                                                                                                                                     Human endothelial cell growth factor - produced by recombinant by both techniques, useful for wound healing Example; Fig 8: 43pp; English.

To screen the human brain stem cDNA library for clones contg. ECGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 985; DB 1; Length 155;
Pred. No. 2.14e-86;
5; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 985; DB 1; Length 155; Pred. No. 2.14e-86; 5; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Recombinant DNA encoding new fibroblast growth factor analogues - useful eg for accelerating wound healing and to control neovascularisation.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 25-JUN-1990 (first entry)
Human acidic fibroblast growth factor.
Acidic fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                  Jaye M, Burgess W, Maciag T, Drohan W; WPI; 87-264128/37.
N-PSDB; N70788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       175 GSCKRGPRTHYGQKAILFLPLPVSSD 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                130 GSCKRGPRTHYGQKAILFLPLPVSSD 155
/label= Beta ECGF
16. .21
/label= Acidic FGF
                                                                  22. .155
/label= Alpha ECGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (BIOT-) Biotechn Res Assoc.
Fiddes UC. Abraham JA, Protter A;
WPI: 89-009785/02.
N-PSDB; N93088.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      P94037 standard; protein; 155 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     y Match 68.5%;
Local Similarity 93.8%;
les 137; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 68.5%;
Best Local Similarity 93.8%;
Matches 137; Conservative
                                                                                                                                                                                                                         (MELO-) MELOY LAB INC.
(RORE ) RORER BIOTECHN INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11-JAN-1989.
06-JUL-1988; 306158.
07-JUL-1987; US-070797.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              p; English.
                                                                                                                                                                              03-MAR-1986; US-835594.
26-MAR-1987; ES-000812.
                                                                                                                                                           32-MAR-1987; U00425.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     See also P94038.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens.
EP-298723-A.
                                                                                                                                                                                                                                                                          RORER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              P94037;
25-JUN-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Disclosure;
                                                                                                                                                                                                                                                                        (RORE-) RORI
BIOTECH INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                      protein
                         protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  wit; 3--35042/44.

When you will are an expected producted agent and conjugates of growth factor receptor ligand and targetted agent.

Partic. DNA or cytotoxin, used to control cell proliferation in the eye, e.g. to prevent growth of pterygii and corneal clouding to a claim 33; Page 140-141; 204pp; English.

ENGINE 33; Page 140-141; 204pp; English.

ENGINE 33; Page 140-141; 204pp; English.

ENGINE 4 are fibroblast growth factors can be respectively. DNA encoding trowth factors can be used to create an FGF/saporin fusion protein. DNA encoding such fusion proteins are useful for targetting saporin (a cytotoxin) to a cell carrying the FGF receptor. Targetted agents (TA) other than saporin antisense DNA or other cytotoxic agent. The linker sequence within the fision protein may increases serum stability or intracellular caylleration in cells carrying the particular growth factor receptor; also when TA is DNA it can be used to deliver this factor receptor; also when TA is DNA it can be used to deliver this complication of perthelial cells, fibroblasts and keratinocytes in the anterior eye after surgery, partic. to prevent excessive proliferation of epithelial cells, fibroblasts and created include trabeculectomy after glaucoma surgery and corneal clouding after trabeculectomy after glaucoma surgery and corneal clouding after complications, Kapsosi's sarcoma and rheumatoid arthritis.

Squence 155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SS SDDFELSGSGDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                13 TEKFULP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                           13-MAY-1996 (first entry).
Fibroblast growth factor 1, FGF-1.
Conjugate; fibroblast growth factor; FGF; cytotoxin; saporin; eye; cell proliferation; regulation; pterygia; corneal clouding; cancer; psoriasis; rheumatoid arthritis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 P70482 standard; Protein; 155 AA.
P70482.
13-MAY-1991 (first entry)
Sequence encoded by complete cDNA sequence of human endothelial cell growth factor (ECGF).
Endothelial cell regeneration; blood vessel regeneration.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 985; DB 1; Length 155
Pred. No. 2.14e-86;
5; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                    Houston LL, Nova MP, Sosnowski BA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 130 GSCKRGPRTHYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            175 GSCKRGPRTHYGQKAILFLPLPVSSD 200
    175 GSCKRGPRTHYGQKAILFLPLPLPVSSD 200
                                                                                              .r 7
R80776 standard; Protein; 155 AA.
R80776;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    68.5%; (larity 93.8%; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                            (PRIZ-) PRIZM PHARM INC.
Baird JA, Houston LL,
                                                                                                                                                                                                                                                                                                                         21-SEP-1995.
15-MAR-1995; U03448.
15-MAR-1994; US-213447.
15-MAR-1994; US-213446.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local Similarity
Matches 137; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 95-336820/43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens.
                                                                                                                                                                                                                                                                                                    WO9524928-A2.
                                                                                                                                                                                                                                                                                 Homo sapiens.
```

Query Match

g

õ g

g ö

5

Gaps

3;

Length 155;

Gaps

<u>ښ</u>

Location/Qualifiers

protein Key

RESULT
ID P7
AC P7
DT 13
DE SE
DE CE
KW EC
KW EC
FH KE

')

13

음

ò 음 ö 130 175

g

8

RESULT

a y a

```
PR 29-00T-1993; US-099924.

R 29-00T-1993; US-145829.

R PRIZ-) PRIZM PHARM INC.

R PRIZ-) PRIZM PHARM INC.

R WHIT-) WHITTIER INST DIABETES & ENDOCRINOLOGY.

Baird AJ. Lappi DA, Sosnowski BA;

WHIT-) WHORD SPEARATIONS OF CYTOTOXIC CONJUGATES and DNA -

New monogenous preparations of cytotoxic agents for treating FGF conditions such as tumours, diabetes and rheumatoid arthitis.

Trating FGF conditions such as tumours, diabetes and rheumatoid arthitis.

S Disclosure; Page 108-109; 128pp; English.

Novel Fusion proteins comprise FGF linked to saporin. FGF-1 to -9 (may be used, pref. FGF-1 (R70812), FGF-5 (R70813), FGF-7 (R70814) or FGF-8 (R70815) muteins, in which at least 1 Cys residue is replaced by conservative Ser substitutions. The Fusion proteins are potent cytochtafl agents to Cells bearing the FGF receptor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20-APR-1999 (first entry)
Human endothelial cell growth factor (ECGF) protein sequence.
Endothelial cell growth factor: ECGF; cleavable; recombinant; repair;
regenerate; blood vessel: endothelial cell; human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               70 YIKSTETGQYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKN 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   13 TEKFNLP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DNA encoding a cleavable signal peptide and an endothelial cell growth factor - useful for producing recombinant endothelial ce growth factor proteins bisclosure; Fig 8: 23pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note= "acidic-FGF begins at this position"
22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note= "beta-ECGF begins at this position"
16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "alph-ECGF begins at this position"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 68.5%; Score 985; DB 1; Length 155
Best Local Similarity 93.8%; Pred. No. 2.14e-86;
Matches 137; Conservative 5; Mismatches 1; Indels
  Ser
/note= "Cys may be replaced by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (RHON ) RHONE-POULENC RORER PHARM INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Drohan WN, Jaye M, Maciag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       175 GSCKRGPRTHYGQKAILFLPLPVSSD 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               130 GSCKRGPRTHYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        W92291 standard; Protein; 155 AA. W92291;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11-APR-1997; 840088.
04-NOV-1996; US-743261.
03-MAR-1986; US-835594.
18-DEC-1987; US-134499.
29-APR-1991; US-693079.
27-NOV-1991; US-799859.
03-NOV-1994; US-334884.
07-UNN-1995; US-472264.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 99-069734/06.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N-PSDB; X01723.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US5849538-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Burgess W,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    27-AuG-1995; U5-237.

27-AuG-1995; US-705245.

30-AuG-1995; US-705245.

4 (UVIO) UNIV JOHNS HORKINS SCHOOL MEDICINE.

Nathans J. Smallwood PM;

WPI; 98-179380/16.

New fibroblast growth factor homologous factors - useful for, e.g.

New fibroblast growth factor homologous factors - useful for, e.g.

Thoulving neuro-degenerative and neoplastic disorders

Involving neuro-degenerative and neoplastic disorders

Involving neuro-degenerative and neoplastic disorders

Disclosure; Page 50-51; 94pp; English.

PT develophast growth factor feel) for the fibroblast growth factor femily and have homology to Fibroblast growth factor femily and have homology to Fibroblast growth factor homologous factor (FHF) proteins. The FHF proteins (FHF) proteins are involved in regulating the growth, survival, and differentiation of cells in the central nervous system, as well as cells in peripheral nervous tissues. The proteins can therefore be used for treating and diagnosing conditions involving the nervous system. FHF's can also be used in methods for maintaining cultured cells or tissues or to promote neuron growth in vitro.

Sequence 155 AA;
                                                                                                   YIKSTETGQYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKN 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 115 YIKSTETGOYLAMDTDGLLYGSQTPNEECLFLEENHYNTYISKKHAEKNWFYGLKKN 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  fusion protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             69
                                                                                                                                                                                                                                                                                                                                                       14-AUG-1998 (first entry)
Fibroblast growth factor protein 1.
FGF; cell growth; survival; differentiation; central nervous system;
peripheral nervous tissue; treatment; diagnosis; cell culture.
Mammalian.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                     13 TEKFNLP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV
                   TEKFNLP-PG--NYKKPKLLYCSNGGHFLRIZPDGTVDGTRDRSDQHIQLQLSAESVGEV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FGF-1; fibroblast growth factor; cytotoxic conjugate; fusic saporin; cytostatic; tumor; diabetes; rheumatoid arthritis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ser"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 985; DB 1; I
Pred. No. 2.14e-86;
5; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note= "Cys may be replaced by misc_difference 132
                                                                                                                                                                                  GSCKRGPRTHYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GSCKRGPRTHYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         175 GSCKRGPRTHYGOKAILFLPLPVSSD 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                              /T 10
W53022 standard; Protein; 155 AA.
W53022;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          R70812 standard; protein; 155 AA.
R70812;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       68.5%; (Slarity 93.8%; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-SEP-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
les 137; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_difference 31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WO9808864-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       05-MAR-1998.
```

Query Match Best Loca Matches

20

g

ò 셤 ò

130

RESULT

ξĢ.

FILES

ä

3;

69 Gaps

9

```
The invention relates to DNA encoding human endothelial cell growth factors (EGGF) and plasmids comprising the DNA sequences. The DNA encodes a cleavable signal peptide and an ECGF, where removal of the signal peptide yields a mature form of the EGGF, where the EGGF is alpha-EGGF or beta-EGGF. The DNA is used to produce recombinant EGGF proteins, which can be used in treatments to repair or regenerate blood vessels or other structures lined with endothelial cells. The present sequence represents a human EGGF protein (the encoding cDNA determined from lambda EGGF clones 1 and 29).
                                                                                                                                                                                                                                         ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SS SDDFELSGSGDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV 114
                                                                                                                                                                                                                                                                                                                                                                      SS SDDFELSGSGDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV 114
                                                                                                                                                                                                                                                                                                                                                 70 YIKSTETGQYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKN 129
                                                                                                                                                                                                                                                                           13 TEKFULP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            17 TEKFNLP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gene encoding human beta-endothelial cell growth factor -
incorporates useful restriction sites at frequent intervals to
facilitate cassette mutagenesis at selected regions.
Disclosure: Fig 3a: 18pp; English.

The synthetic bECGF gene incorporates useful restriction sites at
frequent intervals to facilitate the cassette mutagenesis of
selected regions. Also included are flanking sites to simplify
the incorporation of the gene into any expression system.
bECGF is one of the factors involved in the regulation of
homeostasis of blood vessels acting in part through effects on
endothelial cells. Such factors may also play a role in stages
of atherosclerosis and tumour growth and development.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ώ,
                                                                                                                                                                                                                                         ÷,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note= "sites corresp. to two stop codons of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 165;
                                                                                                                                                                                                      Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1; Indels
                                                                                                                                                                                                                                         1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 22-506-1990 (first entry)
Human bECGF encoded by synthetic gene.
Beta-endothelial cell growth factor; homeostasis; atherosclerosis; tumor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 985; DB 1; 1
Pred. No. 2.14e-86;
5; Mismatches 1;
                                                                                                                                                                                                    Score 985; DB 1; 1
Pred. No. 2.14e-86;
5; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                         130 GSCKRGPRTHYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  the DNA sequence'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LT 13
R05785 standard; Protein; 165
R05785;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Match 68.5%;
Local Similarity 93.8%;
hes 137; Conservative
                                                                                                                                                                                                      68.5%;
93.8%;
                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (BRBI) Brit Bio-Tech Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       018777.
GB-018777.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Davies JA, Johnson ID;
WPI; 90-109883/15.
N-PSDB; 003871.
                                                                                                                                                                                                      Query Match
Best Local Similarity
                                                                                                                                                                  155 AA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    165 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         08-AUG-1988;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          08-AUG-1988;
                                                                                                                                                                                                                                         137;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GB2223497-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11-APR-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Synthetic.
                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Loca
Matches
                                                                                                                                                                                                                        Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                     Ö
                                                                                                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 엄
     88888888888
                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                               ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                             δλ
```

```
83 YIKSTETGOYLAMDTDGLLYGSOTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKN 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      115 YIKSTETGQYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKN 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   damaged blood vessels, etc.

Example D. Frig 8; 22pp; Engdish.

Human endothelial cell growth factor (ECGF) is a mitogen for endothelial cells. Its amino acid sequence was deduced from a cobh clone (T4588F) isolated from a human brain stem library.

Recombinant ECGF-beta (W06616) and ECGF-alpha (W06817) can be produced in transformed host cells. They have utility in the prowth and amplification of endothelial cells in culture, and can potentially be used to treat damaged blood vessels and other endothelial cell-lined structures. They also have diagnostic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      26 TEKFNLP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Recombinant human endothelial cell growth factors - for treating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                02-MAR-1999 (first entry)

Human alpha-endothelial cell growth factor.

Human; endothelial cell growth factor; ECGF; brain stem; probe; hybridisation; bovine; wound healing; prosthetic device.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 168;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 985; DB 1; I
Pred. No. 2.14e-86;
5; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Jaye M, Maciag T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RORER PHARM INC
                                                                                                                                                                                                                                                                           Human endothelial cell growth factor
Endothelial cell growth factor; ECGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  175 GSCKRGPRTHYGQKAILFLPLPVSSD 200
                                   175 GSCKRGPRTHYGQKAILFLPLPVSSD 200
                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     143 GSCKRGPRTHYGQKAILFLPLPVSSD 168
134 GSCKRGPRTHYGQKAILFLPLPVSSD 159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /label= ECGF-alpha
                                                                                                                                                                                                                                                                                                                                                                                                               15. .168
/label= ECGF-beta
35. .168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      W75413 standard; protein; 134 AA.
W75413;
                                                                                                                                                    T 14
W06818 standard; Protein; 168 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         y Match
Local Similarity 93.8%;
hes 137; Conservative
                                                                                                                                                                                                                                                 17-MAR-1997 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    03-MAR-1986, US-835594.

18-DEC-1987, US-134499.

29-APR-1991, US-693079.

27-NOV-1991, US-799859.

03-NOV-1994, US-334884.

07-JUN-1995; US-472964.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (RHON ) RHONE POULENC R
Burgess W, Drohan WN,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           27-0CT-1998.
04-NOV-1996; 743261.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 96-505421/50.
N-PSDB; T45985.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  168 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens.
US5827826-A.
                                                                                                                                                                                                                                                                                                                                               Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             03-MAR-1986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US5571790-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                               protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein
                                                                                                                                                                                                                    W06818;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                               Kev
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DAUD WARE THE THE TABLE TO BE 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
ద
                                                         ò
```

;

, .

```
Compositions for promoting wound healing - containing endothelial cell growth factor polypeptides
Claim 1: Column 16; 23pp; English.
This sequence repersents the amino acid sequence of the mature human alpha endothelial cell growth factor (a-ECGF). The sequence was isolated from a human brain stem cell cDNA library using a probe designed based on fragments of the bovine ECGF (see W75416-W75418). The ECGF protein can be used in compositions for promoting wound healing. ECGF is also used to grow cells on a prosthetic device.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                      Ouery Match 68.4%; Score 983; DB 1; Length 134; Best Local Similarity 100.0%; Pred. No. 3.43e-86; Matches 134; Conservative 0; Mismatches 0; Indels
                                                                                                                                         (RHON ) RHONE-POULENC RORER PHARM INC.
Burgess W, Drohan WN, Jaye M, Maciag T;
WPI; 98-594032/50.
                   03-MAR-1986; US-835594.
18-DEC-1987; US-134499.
29-APR-1991; US-693079.
27-NOV-1991; US-7799859.
03-NOV-1994; US-334884.
07-JUN-1995; US-472964.
```

g ò

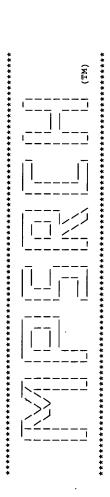
셤 ò

음

ŏ

Search completed: Tue Aug 29 15:56:31 2000 Job time : 16 secs.

-,



Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

MPsrch\_pp protein - protein database search, using Smith-Waterman algorithm

Tue Aug 29 15:55:40 2000; MasPar time 12.06 Seconds 782.316 Million cell updates/sec bular output not generated. : uo u

Description: Perfect Score:

>US-09-121-017B-19--(1-200) from US09121017B.pep 1438 1 MAPARLFALLEFVGGVAES......PRTHYGQKAILFLPLPVSSD 200 Sequence:

PAM 150 Gap 11 Scoring table:

142080 seqs, 47172406 residues Searched:

Post-processing: Minimum Match 0% Listing first 45 summaries

pir64 1:pir1 2:pir2 3:pir3 4:pir4 Database:

Mean 44.267; Variance 78.123; scale 0.567 Statistics: Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

### SUMMARIES

No.	195	191	.191	191	188	179	179	177	88	-87	-87	.85	.85	.85	-83	-82	.76	.72	.50	.50	45	-44	-40
Pred. N	1.04e-19	1.80e-1	3.10e-1	3.10e-1	2.06e-1	1.01e-1	1.74e-1	3.86e-1	2.15e-88	4.89e-8	4.89e-8	1.86e-8	3.13e-8	3.13e-85	5.61e-83	7.48e-82	8.54e-76	8.93e-	3.15e-	3.15e-	1.05e-45	1.24e-4	5.98e-40
	ast gro							wth fac	st grow			<b>.</b> .	st grow	_	st grow	st grow	wth fac	rsor	wth fac	wth fac			growth f
ion	fibroblast	fiblobrast growth	fibroblast	fibroblast	fibroblast	fibroblas	fibroblast	fibroblast	fibroblast	fibroblast	fibroblast growth	in precursor	ast growth										
Description	acidic	fiblobi	basic 1	basic f	basic f	basic 1	basic 1	•	basic 1	basic 1	fibrob]	ryudocan	fibroblast	fibroblast	fibroblast	fibroblast	keratinocyte						
		_	_	_	10		0	ın		10		m	0		~	7			_	ın		0	-
đ	A33665	A60721	D37360	S04147	JH0476	GKBOA	A60130	JW0055	A48834	S00185	GKBOB	A32398	C37360	A31674	531622	A4011	14671	JC145	A48137	<b>S66486</b>	JC5941	JC5940	849501
80	٦	П	~	7	~	-	~	7	~	-	Н	~	~	7	7	Н	C.	7	7	7	~	~	7
Length DB	155	155	155	155	152	155	155	155	189	146	157	210	154	154	164	155	137	198	208	208	207	207	194
% Query Match	68.5	67.2	67.2	67.2		m.	63.7	63.0	36.3	35.9	35.9	35.4	35.3		٠	34.3	٠		24.3		22.9	22.5	21.0
Score	985	196	996	996	954	917	916	906	522	516	516	509	508	508	498	493	466	448	350	350	329	324	302
Result No.		7	m	₹	Ŋ	ω	7	ω	σ	10	11	12	13	14	15	16	17	18	19	20	21	22	23

2.58e-39	1.80e-38	4.76e-38	2.93e-38	5.36e-37	4.11e-35	1.08e-34	1.74e - 34	2.81e-34	4.97e-33	2.08e-32	2.08e-32	8.68e-32	2.25e-31	1.50e-30	2.41e-30	1.05e-28	6.86e-28	2.88e-26	2.88e-26	7.30e-26	4.59e-26
fibroblast growth fac	keratinocyte growth f	fibroblast growth fac	ryudocan precursor -	embryonic fibroblast	transforming protein	fibroblast growth fac	fibroblast growth fac	embryonic Fibroblast	transforming protein	fibroblast growth fac	fibroblast growth fac	HST protein - bovine	ryudocan precursor -	fibroblast growth fac	fibroblast growth fac	fibroblast growth fac	FGF-3 - chicken	basic fibroblast grow	transforming protein	keratinocyte growth f	fibroblast growth fac
A36301	148610	S26049	A42410	S23595	A36207	S68144	150710	S54407	TVHUFS	JH0708	JC4627	JC4268	JC5613	JG0184	TVHUHS	S20102	I50588	A32484	539582	B46289	S14192
ч	7	7	~	7	~	~	~	~	-	~	~	7	~	~	Н	~	7	~	н	7	7
194	194	194	202	187	264	266	194	192	267	9	256	206	198	168	206	208	220	125	237	97	208
20.8	20.5	20.4	20.4	20.0	19.4	19.3	19.2	19.1	18.7	18.5	18.5	18.3	18.2	17.9	17.8	17.2	17.0	16.4	16.4	16.3	16.3
299	292	293	294	288	279	277	276	275	269	566	266	263	261	257	256	248	244	236	236	234	235
24	25	56	27	28	53	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

## ALIGNMENTS

```
A24301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CLASSIFICATION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #accession
                                                       #accession
                                                                                                                                                                                                                                                                                                #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #journal
#title
                                                                                                                                                                            #journal
#title
                                                                                                                                                     #authors
                                                                                                                                                                                                                                                                                                                                                                                                                          #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                   #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENETICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##NCESIGUES 1.40 ##label RES
##residues 1.40 ##label RES
##cross-references GB:M60515; NID:9178226; PIDN:AAA51672.1; PID:9553170;
GB:M60516; NID:9178232; PID:9553171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #authors Yu, Y.L.; Kha, H.; Golden, J.A.; Migchielsen, A.J.; Goetzl,
E.J.; Turck, C.W.
#journal J. Exp. Med. (1992) 175:1073-1080
#title An acidic fibroblast growth factor protein generated by
#cross-references MulD:92202857
#accession JH0707
                                                                                                                                                                                                                                                                                                                                                                                                             #accession A24004
##molecule_type mRNA
##molecule_type mRNA
##residues 1-155 ##label JAY
##cross-references GB:MJ3361; NID:g181941; PIDN:AAA79245.1; PID:g181942
##cross-references GB:MJ3361; NID:g181941; PIDN:AAA79245.1; PID:g181942
##cross-references GB:MJ3361; NID:g181941; PIDN:AAA79245.1; PID:g181942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##Molecule_type mRNA
##molecule_type mRNA
##residues 1-155 ##label YUY
##cross-references GB:X65778; NID:g396163; PIDN:CAA46661.1; PID:g396164
##cross-references GB:X65778; NID:g396163; PIDN:CAA46661.1; PID:g396164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #authors Payson, R.A.; Canatan, H.; Chotani, M.A.; Wang, W.P.; Harris, S.E.; Myers, R.L.; Chiu, I.M.
#journal Nucleic Acids Res. (1993) 21.489-495
#title Cloning of two novel forms of human acidic fibroblast growth #cross-references MID:93181239
#accession S35535
                                                                                                                                                                    ##ressidues
##cross-references EMBL:X51943; NID:g32435; PIDN:CAA36206.1; PID:g32436
#authors Chiu, I.M.; Wang, W.P.; Lehtoma, K.
#journal Oncogene (1990) 5:755-762
#title Alternative splicing generates two forms of mRNA coding for human heparin binding growth factor 1.
#cross-references MUID:90265618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A. Biochem. Biophys. Res. Commun. (1986) 138:611-617
The complete amino acid sequence of human brain-derived
                                                                                                                                                                                                                                              #authors Jaye, M.; Howk, R.; Burgess, W.; Ricca, G.A.; Chiu, I.M.;
Ravera, M.W.; O'Brien, S.J.; Modi, W.S.; Maciag, T.;
Droban, W.N.
$ fournal Science (1986) 233:541-545
#title Human endothelial cell growth factor: cloning, nucleotide
sequence, and chromosome localization.
#cross-references MUID:86261805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           139412
Crumley, G.; Dionne, C.A.; Jaye, M.
Biochem. Biophys. Res. Commun. (1990) 171:7-13
The gene for human acidic fibroblast growth factor encod
two upstream exons alternatively spliced to the first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #authors Harper, J.W.; Strydom, D.J.; Lobb, R.R. #journal Biochemistry (1986) 25:4097-4103 #cross-references MUID:86296647 #accession A23553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##molecule_type protein
##residues 16-155 ##label HAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##cross-references GB:L01485
cession S35536
##starine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##residues 1-58 ##label PA2 ##cross-references GB:L01487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    coding exon.
#cross-references MUID:90365758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##status
##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##molecule_type mRNA
                                                                                                                                                   ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A24820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     139413
                                                                                                                         A43804
                                                                                                                                                                                                                            A24662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       *accession
                                                                                                                            #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
#authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                            REFERENCE
```

```
#product fibroblast growth factor 1 #status experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #authors Gautschi-Sova, P.; Muller, T.; Bohlen, P.
#journal Biochem. Biophys. Res. Commun. (1986) 140:874-880
#title Amino acid sequence of human acidic fibroblast growth factor.
#cross-references_MUID:87048871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Chavan, A.J.; Haley, B.E.; Volkin, D.B.; Marfia, K.E.;
Verticelli, A.M.; Bruner, M.W.; Draper, J.P.; Burke, C.J.;
Middaugh, C.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##nclecule_type protein
##residues 16-30,'X',32-38;73-75,'X',77-97,'X',99-101;128-131,'X',
##residues 133-140,'X',142-152 ##tabel CHA
                                                                                                                                                                     Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A. Biochem. Biophys. Res. Commun. (1986) 1355141-548 Human brain-derived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitogenic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       70 YIKSTETGQYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKN 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gautschi, P.; Frater-Schroder, M.; Bohlen, P.
FEBS Lett. (1986) 204:203-207
Partial molecular characterization of endothelial cell
mitogens from human brain: acidic and basic fibroblast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Biochemistry (1994) 33:7193-7202
Interaction of nucleotides with acidic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #label MAT\
#binding_site carbohydrate (Asn) (covalent) #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       13 TEKFNLP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        alternative splicing; growth factor; heparin binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #length 155 #molecular-weight 17460 #checksum 9243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ë,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 985; DB 1; Length 155;
Pred. No. 1.04e-195;
5; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #superfamily fibroblast growth factor
acidic fibroblast growth factor.
#cross-references MUID:86295741
#accession A24820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             *#molecule_type protein
##residues 16-30,'X',32-49 ##label GAU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #gene GDB:FGF1; FGFA
##cross-references GDB:119909; OMIM:131220
#map_position 591.3 - 5933.2
#introns 57/1; 91/3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##molecule_type protein
##residues 16-155 ##label GA2
##experimental_source brain
                                                                           ##molecule_type protein ##residues 16-155 ##label GIM
                                                                                                                                                                                                                                                                                                                                                                       ##molecule_type protein
##residues 16-47 ##label GI2
##experimental_source brain
ENCE A91364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #cross-references MUID:94271773
#accession A53639
                                                                                                                                                                                                                                                                                                                      *cross-references MUID:86186784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  growth factors. 
cross-references MUID:86275260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      factor (FGF-1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 68.5%;
Best Local Similarity 93.8%;
Matches 137; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      absent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A26386
                                                                                                                                             A90122
                                                                                                                                                                                                                                                                                                                                              A24243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A26386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A53639
```

ä

```
##molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ALTERNATE_NAMES
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CLASSIFICATION
                                                                                                                          #introns
CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #authors
#journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
SUMMARY
                                                                                            GENETICS
                                                                                                            #gene
                                               COMMENT
                                                                                                                                                    SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ENTRY
                                                                                                                                                                                                                                                유
                                                                                                                                                                                                                                                                                                             윱
                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                      A60721 #type complete
acidic fibroblast growth factor - golden hamster
heparin-binding growth factor 1
#formal_name Mesocricetus auratus #common_name golden hamster
10.5ep-1999 #sequence_revision 10.5ep-1999 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Dev. Biol. (1990) 138:454-463
Isolation of cDNAs encoding four mouse FGF family members and
characterization of their expression patterns during
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #cross-references GB:M30641; NID:g193284; PIDN:AAA37618.1; PID:g309236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    O.; Martin,
                                                                                                                                                                                                               Hall, J.A.; Harris, M.A.; Malark, M.; Mansson, P.E.; Zhou, H.; Harris, S.E.
J. Cell. Blochem. (1990) 43:17-26
Characterization of the hamster DDT-1 cell aFGF/HGBF-1 gen and cDNA and its modulation by steroids.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            81 AMDIDGLLYGSQTPNEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #formal_name Mus musculus #common_name house mouse
17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change
16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                   #superfamily fibroblast growth factor
growth factor; heparin binding
#length 155 #molecular-weight 17403 #checksum 9573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Cloning and characterization of the mouse Fgf-1 gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hebert, J.M.; Basilico, C.; Goldfarb, M.; Haub,
                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 155;
                                                                                                                                                                                                                                                                                                                      not compared with conceptual translation
                                                                                                                                                                                                                                                                                                                                                                                                                                                               2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             D37360 #type complete
acidic fibroblast growth factor - mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Madiai, F.; Hackshaw, K.V.; Chiu, I.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                              Pred. No. 1.80e-191;
                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 967; DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               2; Mismatches
                 Gene (1996) 179:231-236
GSCKRGPRIHYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1-155 ##label HEB
                                                                                                                                                                                                                                                                                                                                                   1-155 ##label HAL
                                                                                                                                                                                                                                                                                           #cross-references MUID:90270291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #cross-references MUID:90201563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #cross-references MuID:97128312
#accession JC5231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##molecule_type mRNA
##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                67.2%; S
llarity 97.0%; F
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               embryogenes1s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     D37360; JC5231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           aFGF; FGF-1
                                                                                                                                                                                                                                                                                                                                      ##molecule_type DNA
##residues 1-1
                                                                                                                                                                                                                                                                                                                                                                                                                                               Best_Local Similarity
Matches 131; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            D37360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    G.
                                                                                                                                                                                                                                                                                                        A60723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ENTRY
TILE
TERNATE_NAMES
FANISM
TENTE
                                                                                                                     ALTERNATE_NAMES
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                     CLASSIFICATION
                                                                                                                                                                                                                                                                                                                           ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##status
                                                                                                                                                                                                                                                                                                           #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #authors
                                                                                                                                                                                                                  #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 fjournal
                                                                                                                                                                                ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSIONS
130
                            175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                             #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                   SUMMARY
                                                                          RESULT
셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
```

```
Goodrich, S.P.; Yan, G.C.; Bahrenburg, K.; Mansson, P.E.
Nucleic Acids Res. (1989) 17:2867
The nucleotide sequence of rat heparin binding growth factor
                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JH0476 #type fragment acidic fibroblast growth factor - pig (fragment) #formal_name Sus scrofa domestica #common_name domestic pig 31-Mar-1992 #sequence_revision 31-Mar-1992 #text_change
                                                                                                                                                                                                                                                                                                                                                                        81 AMDTEGLLYGSQTPNEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##cross.references GB:U36456
This protein is an inducer of neovascularization in angiogenic disease including atherosclerosis, cancer and inflammatory
                                                                                                                                                                                                                                                                                               21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQYL 80
                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                   57/1; 91/3
#superfamily fibroblast growth factor
#length 155 #molecular-weight 17417 #checksum
                                                                                                                                                                                                                     Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 155;
                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                               Score 966; DB 2; L6
Pred. No. 3.10e-191;
3; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Match 67.2%; Score 966; DB 2; Lv Local Similarity 96.3%; Pred. No. 3.10e-191; les 130; Conservative 3; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type mRNA
##residues 1-155 ##label GOO
1-155 ##label MAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 (HBGF-1).
#cross-references MUID:89240051
                                                                                                                                                                                                               Query Match 67.2%;
Best Local Similarity 96.3%;
Matches 130; Conservative
                                                                               autoimmune disease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                        141 GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             186 GOKAILFLPLPVSSD 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     141 GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            186 GOKAILFLPLPVSSD 200
```

```
#cross-references MUID:87016918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##residues
                                                                                                                                                                                                                                                                                                                ##residues
                                                                                                                                                                                                                        #authors
#submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #accession
                                                                                                             #accession
                                                                                                                                                                                                                                                                    #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Halley, C.; Courtois, Y.; Laurent, M. Nucleic Acids Res. (1988) 16:10913 Nucleotide sequence of bovine acidic fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Renaud, F.; Desset, S.; Bugra, K.; Halley, C.; Philippe,
J.M.; Courtois, Y.; Laurent, M.
Biochem. Biophys. Res. Commun. (1992) 184:945-952
Heterogeneity of 3' untranslated region of bovine acidic FGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alterio, J.; Halley, C.; Brou, C.; Soussi, T.; Courtois, Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GKBOA #type complete
acidic fibroblast growth factor precursor - bovine
acidic fibroblast growth factor II; heparin-binding growth
factor I; prostatropin
#formal_name Bos primigenius taurus #common_name cattle
13-Aug-1986 #sequence_revision 03-Feb-1994 #text_change
                                                                                                                                                                                                     ##residues ----- 1-152 ##label SCH
##cross references EMBL.X60317; NID:g1873; PIDN:CAA42869.1; PID:g1874
##experimental_source heart
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              70 YIKSTETGQYLAMDTSGLLYGSQTPSEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKN 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    115 YIKSTETGOYLAMDIDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKN 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A91010, A24477; B25043; C25043; A25043; A24539; A60884;
A37892; B37892; A61198; I46024; A34477; A01385
                                                                                                                                                                                                                                                                                         the hydrophobic core residues are packed around the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       13 TEKFNLP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##cross-references EMBL:X13221; NID:g347; PIDN:CAA31610.1; PID:g348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JH0613; S02102; S02661; S22065; B24663; A94281; S03953;
                                                                                                                                                                                                                                                                                                             internal symmetry axis
COMMENT This protein belongs to the fibroblast growth factor family.
CLASSIFICATION #superfamily fibroblast growth factor
KEYWORDS growth factor; heparin binding
                                  **ERENCE 540476 Schmidt, M.; Sharma, H.S.; Schott, R.J.; Schaper, W. #Journal Blochem. Blophys. Res. Commun. (1991) 180:853-859 #title . Amplification and sequencing of mRNA encoding acidic #cross-references MUID:92062117
                                                                                                                                                                                                                                                                                                                                                                                                                                         #binding_site heparin (Lys) #status predicted
#length 152 #checksum 1124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 152;
                                                                                                                                                                                                                                                                                                                                                                                                                           #region nuclear location signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 954; DB 2; Le
Pred. No. 2.06e-188;
6; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #crcc.
#accession JHVV...
##molecule_type DNA
58-155 ##label REN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1-155 ##label HAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  130 GSCKRGPRTHYGQKAILFLPLPV 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          175 GSCKRGPRTHYGQKALLFLPLPV 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #cross-references MUID:89083506
#accession S02102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #cross-references MUID:92246990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 66.3%;
larity 91.6%;
Conservative
                    JH0476; S20072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    18-Jun-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            transcripts
16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #accession S02102
##molecule_type mRNA
                                                                                                                                                                                              ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best_Local Similarity
Matches 131; Conser
                                                                                                                                                                           JH0476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ALTERNATE_NAMES
                                                                                                                                                                              #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
#authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                        ATURE 22-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                133
MMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ENTRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
```

```
#authors Abraham, J.A.; Mergia, A.; Whang, J.L.; Tumolo, A.; Frledman, J.H.; Hjerrild, K.A.; Gospodarowicz, D.; Fiddes, J.C.
#journal Science (1986) 23:545-548
#title Nucleotide sequence of a bovine clone encoding the anglogenic protein, basic fibroblast growth factor.
#cross-references MulD:86261806
#accession B24663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 fauthors Gimenez-Gallego, G.; Rodkey, J.; Bennett, C.; Rios-Candelore, M.; DiSalvo, J.; Thomas, K.
Science (1985) 230:1385-1388
†title Brain-derived acidic fibroblast growth factor: complete amino acid sequence and homologies.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #authors Quinkler, W.; Maasberg, M.; Bernotat-Danielowski, S.; Luethe, N.; Sharma, H.S.; Schaper, W.
#journal Bur. J. Blochem. (1989) 181:67-73
#title Isolation of heparin-binding growth factors from bovine, porcine and canine hearts.
#cross_references_MUID:89231704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##molecule_type protein
##residues 16-30,'X',32-34,'X',36-44 ##label BOH
BNCE A24477
uthors Crabb, J.W.; Armes, L.G.; Carr, S.A.; Johnson, C.M.; Roberts,
                #fitle Characterization of a bovine acidic FGF cDNA clone and its expression in brain and retina. #cross-references WUID:89078619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Proc. Natl. Acad. Sci. U.S.A. (1986) 83:7216-7220
Structural evidence that endothelial cell growth factor be
sis the precursor of both endothelial cell growth factor
alpha and acidic fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                    ##cross-references EMBL:X66446; NID:9411; PIDN:CAA47063.1; PID:9412
NO.E A94290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #authors Bohlen, P.; Esch, F.; Baird, A.; Gospodarowicz, D. EMBO J. (1985) 4:1951-1956
#title Acidic fibroblast growth factor (FGF) from bovine brain: amino-terminal sequence and comparison with basic FMF.
#cross-references WUD:86055750
#accession A91010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Burgess, W.H.; Mehlman, T.; Marshak, D.R.; Fraser, B.A.;
                                                                                                                                                                                                                          ##cross-references EMBL:X14032; NID:g322; PIDN:CAA32192.1; PID:g323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         G.D.; Bordoll, R.S.; McKeehan, W.L.
#journal Biochemistry (1986) 25:4988-4993
#title Complete primary structure of prostatropin, a prostate epithelial cell growth factor.
#cross-references MUID:87026586
                                                                                                                                                                                                                                                                                      Philippe, J.M. submitted to the EMBL Data Library, May 1992 S22065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2,'GE',5-155 ##label CRA
(1988) 242:41-46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##molecule_type mRNA
##residues 62-102 ##label ABR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##molecule_type protein
##residues 16-155 ##label GIM
SNCE S03953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##molecule_type protein
##residues 16-45 ##label QUI
SNCE A91010
                                                                                                                                                        ##molecule_type mRNA
##residues 1-155 ##label ALT
                                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type mRNA
##residues 1-18 ##label PHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Maciag, T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A94127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A94281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S03953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A94281
                                                                                                                             S02661
```

```
ALTERNATE_NAMES
ORGANISM
                                                                                                                                    #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #authors
#journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                             COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ENTRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #authors Kuo, M.D.; Huang, S.S.; Huang, J.S.
#journal J. Biol. Chem. (1990) 265:16455-16463
#title Acidic fibroblast growth factor receptor purified from bovine liver is a novel protein tyrosine kinase.
#cross-references MUID:90375514
                                                                                                        Brain Res. Dev. Brain Res. (1991) 63:13-19
Class 1 heparin binding growth factor promotes the
differentiation but not the survival of cillary neurones in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Primary structure and mitogenic and angiogenic activities of
brain-derived acidic fibroblast growth factor.
A60884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Philippe, J.M.; Renaud, F.; Desset, S.; Laurent, M.; Mallet, J.; Courtols, Y.; Edwards, J.B.
Ji.; Courtols, Y.; Edwards, J.B.
Ji.; Courtols, Res. Commun. (1992) 188:843-850
Cloning of two different 5' untranslated exons of bovine acidic fibroblast growth factor by the single strand ligation to single-stranded cDNA methodology.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4
             ##molecule_type protein
##residues 2-155 ##label BUR
##note this form was designated beta endothelial cell growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##molecule_type protein
##residues 62-76,'X',78-86 ##label KUO
##residues this sequence is an amino-terminal fragment of a form
##note designated as brain-derived growth factor B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A61198
Hill, C.E.; Belford, D.A.; Godovac-Zimmermann, J.; Hendry,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##molecule_type protein
##residues 11-26;28-50;53-110,'H',112,'NTY';134-155 ##label HIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##residues 1-18 ##label PH2
##cross-references EMBL:X66446; NID:g411; PIDN:CAA47063.1; PID:g412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A34477
Sasaki, H.; Hoshi, H.; Hong, Y.M.; Suzuki, T.; Kato, T.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ξ
                                                                                                                                                                                                                             cell
                                                                                                                                                                                                                                                                             #authors Strydom, D.J.; Harper, J.W.; Lobb, R.R.
#journal Blochemistry (1986) 25:945-951
#title Amino acid sequence of bovine brain derived class heparin-binding growth factor.
#cross-references MUID:86187766
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Thomas, K.A.; Gimenez-Gallego, G.; Rios-Candelore,
                                                                                                                                                                                                       22-155 ##label BU3
this form was designated alpha endothelial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Disalvo, J.
J. Protein Chem. (1987) 6:163-171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##molecule_type protein
##residues 16-155 ##label THO
                                                                                                                                                                                                                                                                                                                                                                                                                   16-155 ##label STR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       *cross-references MUID:92164087
                                                                                                                                                                                                                                               factor
                                                                           factor
                                                                                                                                                                                                                                                                                                                                                                            #accession A24539
##molecule_type protein
                                                                                                                                                                                      ##molecule_type protein
##residues 22-155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##molecule_type mRNA
                                                                                           C25043
B25043
                                                                                                                                                                  A25043
                                                                                                                                                                                                                                                                                                                                                                                                                                       A60884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A37892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A37892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  146024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A61198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          I46024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #cross-references
#accession 1460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                       ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #accession
                                                                                                                                                                      #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #accession
 *accession
                                                                                             #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #accession
                                                                                                                                                                                                                                                               REFERENCE
#authors
#journal
                                                                                                                                                                                                                             ##note
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
#authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                             #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  fjournal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
```

```
The actidic and basic fibroblast growth factors are the major endothelial-cell growth factors. Both are anglogenic agents in endothelial-cell growth factors. Both are anglogenic agents in vivo and are potent mitogens for a variety of mesodern-derived cell types in vitro (although bFGF is 30·100 times more potent than aFGF in stimulating the proliferation of normal diploid cells). There are differences in the tissue distribution and concentration of these two growth factors.

This protein binds heparin, although less strongly than does bFGF. There are some sequence similarities between residues 117-126 (a region flanked by Lys-Lys dippetides) and a number of neuropeptides, including a gastrin-releasing peptide from the pig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #authors Risau, W.; Gautschi-Sova, P.; Boehlen, P.
#journal EMBO J. (1988) 7:959-962
#title Endothelial cell growth factors in embryonic and adult chick
Erain are related to human acidic fibroblast growth factor.
#cross_references_MUID:88296438
Sasaki, H.; Saito, M.; Youki, H.; Karube, K.; Konno, S.; Onodera, M.; Saito, T.; Aoyagi, S.

# fournal J. Biol. Chem. (1989) 264:17606-17612

# title Purification of acidic fibroblast growth factor from bovine heart and its localization in the cardiac myocytes.

# accession A34477

# # A4477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21 GNYKKPKLLYCSNGGYFLRILPDGTVDGTKDRSDQHIQLQLCAESIGEVYIKSTETGQFL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A60130 *type complete acidic fibroblast growth factor - chicken endothelial cell growth factor *fermal_name Gallus gallus *common_name chicken 03-Mar-1993 *sequence_revision 03-Mar-1993 *text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Schnuerch, H.; Risau, W.
Development (1991) 111:1143-1154
Differentiating and mature neurons express the acidic
fibroblast growth factor gene during chick neural
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 917; DB 1; Length 155;
Pred. No. 1.01e-179;
6; Mismatches 5; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##molecule_type protein
22-30,'X',32-44,'X',46-48 ##label RIS
FICATION #superfamily fibroblast growth factor
                                                                                                                                                                                                                                                                                  ##molecule_type protein
##residues 16-24,121-127;134-143 ##label SAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Note: remainder of annotations omitted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    development.
#cross-references MUID:91347925
#accession A60130
                                                                                                                                                                                                                                                   preliminary
                                                                                                                                                                                                                                                                                                                                             ##experimental_source heart
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 63.8%;
Best Local Similarity 91.9%;
Matches 124; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   16-Jul-1999
A60130; S02639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  141 GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              186 GQKAILFLPLPVSSD 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##molecule_type mRNA
##residues 1-155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A60130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 202639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                802639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
```

```
*cross-references MUID:93246053
              A48834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ALTERNATE_NAMES ORGANISM
                                                                                                                                                                                                                                                                                              CLASSIFICATION
SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CLASSIFICATION
                                                                                                                                                                                                                                    #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #accession
                                                                                                                                                                                                                    #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          107-110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KEYWORDS
FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           18 - 22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Biochem. Biophys. Res. Commun. (1998) 246:182-191
Primary structure of ovine fibroblast growth factor-1 deduced
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        idues 1.155 ##label GRI
This protein is a potent mitogenic factor for NIH 3T3 fibroblasts
in the absence of heparin.
fION #superfamily fibroblast growth factor
#length 155 #molecular-weight 17557 #checksum 8890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Borja, A.Z.; Meijers, C.; Zeller, R.
Borv. Biol. (1993) 157:110-118
Expression of alternatively spliced bFGF first coding exons
and antisense mRNAs during chicken embryogenesis.
                                                                                                                                                                                                                                                                                                                                                                                                                                     Grieb, T.W.; Ring, M.; Brown, E.; Palmer, C.; Belle, N.;
Donjerkovic, D.; Chang, H.; Yun, J.; Subramanian, R.;
Forozan, F.; Guo, Y.; Vertes, A.; Winkles, J.A.; Burgess,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  81 AMDTNGLLYGSQLPGEECLFLERLEENHYNTYISKKHADKNWFVGLKKNGNSKLGPRTHY 140
                                                                                                                                                                     21 GNYKKPKLLYCSNGGHFLRILPDGKVDGTRDRSDQHIQLQLSAEDVGEVYIKSTASGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      21 GNYKKPKLLYCSNGGYFLRILPDGRVDGTKDRSDQHIQLQLYAESIGEVYIKSTETGQFL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A48834 #type complete
basic fibroblast growth factor - chicken
#formal_name Gallus gallus #common_name chicken
01-bec-1993 #sequence_revision 18-Nov-1994 #text_change
16-Jul-1999
                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                         #formal_name Ovis sp. #common_name sheep
17-Jun-1998 #sequence_revision 10-Jul-1998 #text_change
07-May-1999
tlength 155 #molecular-weight 17322 #checksum 7617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .;
0
                                                           ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 155;
                              Length 155;
                Score 916; DB 2; Length 155. Pred. No. 1.74e-179; Vienastrhes 7; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 906; DB 2; Le
Pred. No. 3.86e-177;
                                                                                                                                                                                                                                                                                                   JW0055 #type complete
fiblobrast growth factor-1 - sheep
FGF-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         by protein and cDNA analysis.
#cross-references MUID:98262939
#accession JW0055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       63.0%;
ilarity 90.4%;
Conservative
                             63.78;
larity 90.48;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A48834; S23636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                186 GOKAILFLPLPVSSD 200
                                                                                                                                                                                                                                    141 GQKAILFLPLPVSAD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               141 GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
Matches 122; Conserv
                                             Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A48834
                                                           122;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##residues
                                                                                                                                                                                                                                                                                                                                            ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CLASSIFICATION
SUMMARY
                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSIONS
REFERENCE
#authors
#journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                       #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #journal
                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSIONS
REFERENCE
                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                                                                                                        SULT
SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ENTRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   d
                                                                                                                         δ
                                                                                                                                                     엄
                                                                                                                                                                                   ö
                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
```

```
Primary structure of ovine pituitary basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Simpson, R.J.; Moritz, R.L.; Lloyd, C.J.; Fabri, L.J.; Nice, E.C.; Rubira, M.R.; Burgess, A.W.
FEBS Lett. (1987) 224:128-132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           66 ANYKKPKLLYCSNGGHFLRILPDGTVDGTKDRSDQHIQLQLSAESVGEVYIKSTETGQYL 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               118 AMKEDGRILLALKCATEECFFFERLESNNYNTYRSRKYSD--WYVALKRTGQYKPGPKTGP 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           58 GHFKDPKRLYCKNGGFFLRINPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVSANRFL 117
                                                                                            sequence extracted from NCBI backbone (NCBIN:131000, NCBIP:131001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #common_name domestic sheep
10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change
                                                                                                                                            ERENCE S23636
#authors Mitrani, E.; Gruenbaum, Y.; Shohat, H.; Ziv, T.
#journal Development (1990) 109:387-393
#title Fibrology growth factor during mesoderm induction in early chick embryo.
#cross-references MUID:90382254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S00185 #type complete
basic fibroblast growth factor - sheep
brostatropin
#formal_name Ovis orientalis aries, Ovis ammon aries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #checksum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #region heparin binding #status predicted/
#region heparin binding #status predicted
#length 146 #molecular-weight 16434 #checksum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 146;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 189;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 36.3%; Score 522; DB 2; Length 189
Best Local Similarity 54.5%; Pred. No. 2.15e-88;
Matches 73; Conservative 23; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 516; DB 1; Length 146
Pred. No. 4.89e-87;
22; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        growth factor; heparin binding; mitogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1-146 ##label SIM
#superfamily fibroblast growth factor
##status preliminary
##molecule_type nucleic acid
##residues 1-189 ##label BOR
                                                                      ##experimental_source embryo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tcross-references MUID:88055577
                                                                                                                                                                                                                                                                                                                 preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 35.9%;
Best Local Similarity 55.2%;
Matches 74; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10-Sep-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              176 GQKAILFLPMSAKS 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##molecule_type_DNA
##residues 95-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S00185
                                                                                                                                                                                                                                                                                          823636
```

ORGANISM

RESULT TITLE

ò g à

```
#authors Baird, A.; Esch, F.; Boehlen, P.; Ling, N.; Gospodarowicz, D. #journal Regul. Pept. (1985) 12:201-213
#title Isolation and partial characterization of an endothelial cell growth factor from the bovine kidney: homology with basic fibroblast growth factor.
#cross-references MJD:86095426
#accession A60316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Proc. Natl. Acad. Sci. U.S.A. (1985) 82:6507-6511
Primary structure of bovine pituitary basic fibroblast growth factor (FGF) and comparison with the amino-terminal sequence of bovine brain acidic FMF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #authors Bohlen, P.; Baird, A.; Esch, F.; Ling, N.; Gospodarowicz, D.
#journal Proc. Natl. Acad. Sci. U.S.A. (1984) 81:5364-5368
#title Isolation and partial molecular characterization of pitultary fibroblast growth factor.
#cross-references MUID:84298139
#accession A22054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gospodarowicz, D.; Baird, A.; Cheng, J.; Lui, G.M.; Esch, F.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Esch, F.; Baird, A.; Ling, N.; Ueno, N.; Hill, F.; Denoroy, L.; Klepper, R.; Gospodarowicz, D.; Bohlen, P.; Guillemin,
                             #authors Ueno, N.; Baird, A.; Esch, F.; Shimasaki, S.; Ling, N.; Gulllemin, R. Gulllemin, R. Gegul. Pept. (1986) 16:135-145
#title Purification and partial characterization of a mitogenic factor from bovine liver: structural homology with basic fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The acidic and basic flaroblast growth factors are the major rendethelial-cell growth factors. Both are angiogenic agents in vivo and are potent mitrogens for a variety of mesoderm-derived cell types in vitro (although bFGF is 30-100 times more potent than aFGF in stimulating the proliferation of normal diploid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #title Isolation of fibroblast growth factor from bovine adrenal
  gland: physicochemical and biological characterization.
#cross-references MUID:86081530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       the amino end of this form was blocked; the peptide composition matched what was thought to be the signal
                                                                                                                                                                                                                                                                                                                                                                             #authors Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R. #journal Biochem. Blophys. Res. Commun. (1986) 138:580-588 #title Isolation of an amino terminal extended form of basic #cross-references MUD:86295737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This protein binds heparin more strongly than does aFGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##molecule_type protein
##residues 12-25,27-35,'X',37-40 ##label GOS
##experimental_source adrenal gland
                                                                                                                                                                                                                                                     ##molecule_type protein
##residues 23-35,'X',37-42 ##label UEN
##experimental_source liver
SNCE A24819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type protein
##residues 27-35,'x',37-43 ##label BAI
##experimental_source kidney
NNCE A22054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bohlen, P.
Endocrinology (1986) 118:82-90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##experimental_source pituitary gland
NCE A60316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12-157 ##label ESC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12-26 ##label BOH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #cross-references MUID:86016731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sednence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A61094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A01386
                                                                                                                                                                                                                                      A60310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A61094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##residues
                                                                                                                                                                                                                                      #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      *accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         fcontents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #authors Abraham, J.A.; Mergia, A.; Whang, J.L.; Tumolo, A.; Friedman,
J.; Hjerrild, K.A.; Gospodarowicz, D.; Fiddes, J.C.
#journal Science (1986) 233:545-548
#title Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fibroblast growth factor.
#cross-references MUID:86261806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type mRNA
##residues 3-157 ##label ABR
##cross_references GB:MI3440; NID:g163049; PIDN:AAA30518.1; PID:g163050
##experimental_source pituitary gland
WTCE A90924
                                                                                                                                                                                                                                                                                                                 basic fibroblast growth factor precursor - bovine (fragment)
brGf; kidney-derived growth factor; prostatropin
13-Aug-1986 #sequence_revision 02-Jun-1995 #text_change
10-Sep-1999
A24663; A32878; A33784; A61550; A61551; A60310; A61094;
A01386; A60316; A22054; A24819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Milner, P.G.; Li, Y.S.; Hoffman, R.M.; Kodner, C.M.; Siegel, N.R.; Deuel, T.F.
Blochem. Blophys. Res. Commun. (1989) 165:1096-1103
A novel 17 kD heparin-binding growth factor (HBGF-8) in bovine uterus: purification and N-terminal amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #authors Bertolini, J.; Hearn, M.T.W.
#journal Mol. Cell. Endocrinol. (1987) 51:187-199
#title Isolation, characterisation and tissue localisation of an N-terminal-truncated variant of fibroblast growth factor.
#cross-references MulD:87247652
#accession A61550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Fiddes,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R. Mool. Cell. Endocrinol. (1987) 49:189-194 Isolation and partial characterization of basic fibroblast growth factor from bovine testis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #journal Cold Spring Harb. Symp. Quant. Biol. (1986) 51:657-668
#Litle Human basic fibroblast growth factor: nucleotide sequence,
genomic organization, and expression in mammalian cells.
#cross references MUID:87217066
#accession A32878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1-14 ##label MIL
demonstration of a possible alternative initiator or
splice junction
75 AMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGPKTGP 132
                                this form appears to be identical to the renal form
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type protein
##residues 27-35,'X',37-41 ##label UE3
                                                                                                                                                                                                                                                                                            #type fragment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 16-35 ##label BER
A61551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##molecule_type mRNA
##residues 3-157 ##label AB2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##experimental_source testes
##note
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #cross-references MuID:90121211
#accession A33784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #cross-references MUID:87162856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##molecule_type protein
                                                                                                           133 GOKAILFLPMSAKS 146
                                                                                                                                                                       186 GOKAILFLPLPVSS 199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A61550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A94290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A24663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A61551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##residues
                                                                                                                                                                                                                                                                                                                                                  ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #journal #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #authors
                                                                                                                                                                                                                                                           11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /#journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
```

œ

Page

```
#product basic fibroblast growth factor, uterine form
#status predicted #label MATI\
#product basic fibroblast growth factor, pituitary gamma
form #status experimental #label MAT2\
#product basic fibroblast growth factor, pituitary alpha
form #status experimental #label MAT3\
#product basic fibroblast growth factor, pituitary short
form #status predicted #label MAT4\
#product basic fibroblast growth factor, hepatic form
#status experimental #label MAT4\
#product basic fibroblast growth factor, renal form
#status experimental #label MAT6\
#product basic fibroblast growth factor, renal form
#status experimental #label MAT6\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A32398 #type complete
basic fibroblast growth factor precursor, 22.5K form - human
bFGF; fibroblast growth factor 2; prostatic growth factor;
prostatropin
basic fibroblast growth factor, 18K form
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##cross-references GB:J04513; NID:9183083; PIDN:AAA52531.1; PID:9459811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #authors Prats, H.; Kaghad, M.; Prats, A.C.; Klagsbrun, M.; Lelias, J.M.; Liauzun, P.; Chalon, P.; Tauber, J.P.; Amalric, F.; Smith, J.A.; Caput, D. Proc. Natl. Acad. Sci. U.S.A. (1989) 86:1836-1840 #title High molecular mass forms of basic fibroblast growth factor are initiated by alternative CUG codons.
                                                                                                                                                                                                                                                                                                                                                                                                        #region heparin binding #status predicted\
#modified_site blocked amino end (Ala) (in mature form pituitary gamma) (probably acetylated) #status experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               authors translated the codon GGA for residue 47 as Ala
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #journal Growth Factors (1991) 4:277-287
#title Growth Factors (1991) 4:277-287
#cross-references MUD:92110035
#accession A61537
##molecule_type DNA
##residues
##nofe
*superfamily fibroblast growth factor alternative splicing; anglogenesis; growth factor; heparin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           66 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               16-Jul-1999
A32398; A61537; A26642; B32878; S00297; A54316; B54316;
A33624; A25824; B24243; B24301; S42242; B55784; I52267;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  86 AMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGPKTGP 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #formal_name Homo sapiens #common_name man
31-Jul-1989 #sequence_revision 31-Dec-1993 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 157;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 516; DB 1; Length 157
Pred. No. 4.89e-87;
22; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #length 157 #checksum 1115
                                                      binding; mitogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
35.9%;
Best Local Similarity 55.2%;
Matches 74; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  144 GOKAILFLPMSAKS 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #accession A32398
##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                             29-33, 118-121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ALTERNATE_NAMES
  CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CONTAINS
ORGANISM
-DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                      12-157
                                                                                                                                                                                                                                                        16-157
                                                                                                                                                                                                                                                                                                          23-157
                                                                                                                                                                                                                                                                                                                                                            27-157
                                                                           FEATURE
1-157
                          KEYWORDS
                                                                                                                                                     4-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
```

```
#authors Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Friedman, J.; Gospodarowicz, D.; Fiddes, J.C.
#journal EMBO J. (1986) 5:2523-2528
#title Human basic fibroblast growth factor: nucleotide sequence and genomic organization.
#cross-references MJID:87053817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Feige, J.J.; Bradley, J.D.; Fryburg, K.; Farris, J.; Cousens, L.C.; Barr, P.J.; Baird, A. J. Cell Biol. (1989) 109:3105-3114
Differential effects of heparin, fibronectin, and laminin on the phosphorylation of basic fibroblast growth factor by protein kinase C and the catalytic subunit of protein
                                                                                                                                                                         ##molecule_type mRNA
##residues 56-210 ##label KUR
##cross-references GB:M27968; NID:9182562; PIDN:AAA52448.1; PID:9182563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #journal Jpn. J. Cancer Res. (1991) 82:1263-1270
#title Characterization of high-molecular-mass forms of basic fibroblast growth factor produced by hepatocellular carcinoma cells: possible involvement of basic fibroblast growth factor in hepatocarcinogenesis.
#cross-references MUID:92091228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Story, M.T.; Esch, F.; Shimasaki, S.; Sasse, J.; Jacobs, S.C.; Lawson, R.K.
Biochem. Biophys. Res. Commun. (1987) 142:702-709
Amino-terminal sequence of a large form of basic fibroblast
growth factor isolated from human benign prostatic
hyperplastic tissue.
                                                                                                                                                                                                                                                                                     Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Fiddes,
                                                                                                                                                                                                                                                                                                                                      #journal Cold Spring Harb. Symp. Quant. Biol. (1986) 51:657-668 #title Human baalc fibroblast growth factor: nucleotide sequence, genomic organization, and expression in mammalian cells. #cross-references WUID:87217066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          the authors translated the codon GAA for residue 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1-155 ##label AB2
the authors translated the codon GAA for residue 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##molecule_type protein
##residues /xxx,19,'x',21-29 ##label SH2
##note sequence extracted from NCBI backbone (NCBIP:71594)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Shimoyama, Y.; Gotoh, M.; Ino, Y.; Sakamoto, M.; Kato, Hirohashi, S.
                  Kurokawa, T.; Sasada, R.; Iwane, M.; Igarashi, K.
FEBS Lett. (1987) 213:189-194
Cloning and expression of cDNA encoding human basic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     not compared with conceptual translation
                                                                                              fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##molecule_type protein
##residues 57-210 ##label FEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##molecule_type mRNA
##residues 56-210 ##label ABR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #cross-references MUID:90078343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        _{\rm G1y}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     _{\rm G1y}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          kinase A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##molecule_type DNA
##residues 1-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B54316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A25824
                                                                                                                                                                                                                                                                                                                                                                                                                                               B32878
A26642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A33624
                                                                                                                                                         A26642
                                                                                                                                                                                                                                                             A90924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S00297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                 #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #accession
                                                                                                                                                         #accession
                                                #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #journal
                                                                                                                                                                                                                                                                                          #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #authors
                     #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
REFERENCE
                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
```

```
##residues
##note
                                                                                                                                                                           #start_codon
CLASSIFICATION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##status
         *accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #authors
                                                                                                                                                                                                                                                                                                                              65-210
                                                                                                                                                                                                                                                               FEATURE
1-210
                                                                                                                                                                                                                                                                                                                                                                         82-86
                                                                                        GENETICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                #gene
                                                                                                                                                                                                                                                                                                                                                                                                                 SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #journal Blochem. Blochys. Res. Commun. (1992) 187:1227-1231
#tile Reverse transcription with nested polymerase chain reaction shows expression of basic fibroblast growth factor transcripts in human granulosa and cumulus cells from in vitro fertilisation patients.
                                                                                                                            Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A. Blochem. Blophys. Res. Commun. (1986) 135:541-548 Human brain-derived acidic and basic flbroblast growth factors: amino terminal sequences and specific mitogenic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #authors Patry, V.; Bugler, B.; Amalric, F.; Prome, J.C.; Prats, H.
#journal FEBS Lett. (1994) 349:23-28
#title Purlification and characterization of the 210-amino acid
recombinant basic fibroblast growth factor form (FGF-2).
#cross-references MUID:94320639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pantoliano, M.W.; Horlick, R.A.; Springer, B.A.; Van Dyk, D.E.; Tobery, T.; Wetmore, D.R.; Lear, J.D.; Nahapetian, A.T.; Bradley, J.D.; Sisk, W.P.
Biochemistry (1994) 33:1029-1024B
Multivalent ligand-receptor binding interactions in the fibroblast growth factor system produce a cooperative growth factor and heparin mechanism for receptor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Watson, R.; Anthony, F.; Pickett, M.; Lambden, P.; Masson,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sommer, A.; Brewer, M.T.; Thompson, R.C.; Moscatelli, D.;
                                                                                                                                                                                                                                                                                                                                                                    Gautschi, P.; Frater-Schroder, M.; Bohlen, P. FEBS Lett. (1986) 204:203-207 Pertial molecular characterization of endothelial cell mitogens from human brain: acidic and basic fibroblast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Presta, M.; Rifkin, D.B.
Biochem. Blophys. Res. Commun. (1987) 144:543-550
A form of human basic fibroblast growth factor with an
extended amino terminus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##residues 54-210 ##label SOM
##cross-references EMBL:M17599; NID:g183086; PIDN:AAA52534.1;
PID:g183087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #accession B243vu
accession B243vu
##molecule_type protein
##molecule_type 55-88,'X',90-98,'X',100 ##label GAU
                                                                                                                                                                                                                                                                          ##molecule_type protein
##residues 65-102,'X',104-105 ##label GIM
##experimental_source brain
SNCE A91364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##cross-references GB:S47380; NID:g256535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #experimental_source granulosa cells
ICE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       95-182 ##label RES
                                    ##molecule_type protein
##residues 57-77 ##label STO
##experimental_source prostate
SNCE A90122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##molecule_type protein
##residues 54-71 ##label PAN
#cross-references MUID:87156686
#accession A25824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #cross-references MUID:86275260
#accession B24301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #cross-references MUID:87213238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              dimerization.
#cross-references MUID:94347757
#accession B55784
                                                                                                                                                                                                                                        cross-references MUID:86186784
                                                                                                                                                                                                                                                                                                                                                                                                                                                          growth factors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    **status preliminary
**molecule_type mRNA
                                                                                                                                                                                                                 activities
                                                                                                                                                                                                                                                            B24243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           152267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       542242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #accession
                                                                                                                                                                                                                                                                                                                                                                                      #journal #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #journal
#title
                                                                                                                              #authors
                                                                                                                                                    #journal
                                                                                                                                                                                                                                                                                                                                                                      #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #authors
                                                                                                          REFERENCE
                                                                                                                                                                         #title
                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
```

```
Dev. Biol. (1990) 138:454-463
Isolation of cDNAs encoding four mouse FGF family members and
characterization of their expression patterns during
                                                                                                                                                                                                                                                                                                                                                                                                                                                                *Superfamily fibroblast growth factor alternative initiators; anglogenesis; growth factor; heparin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##residues 1.154 ##label HEB ##cross.references GB:M30644; NID:g193296; PIDN:AAA37621.1; PID:g309239 CLASSIFICATION #superfamily fibroblast growth factor #superfamily fibroblast #superfamily #superfamily fibroblast #superfam
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A37360
Hebert, J.M.; Basilico, C.; Goldfarb, M.; Haub, O.; Martin,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            66 ANYKRPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              79 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 139 AMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYT--SWYVALKRTGQYKLGSKTGP 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              66 ANYKKPKLLYCSNGGHFLRILDPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   83 AMKEDGRLLASKCVTEECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGSKTGP 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #product basic fibroblast growth factor, 22.5K form
#status predicted #label MA2,
#product basic fibroblast growth factor, 18K form
#status predicted #label MAT,
#region heparin binding #status predicted,
#region heparin binding #status predicted
#length 210 #molecular-weight 22623 #checksum 3610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 23 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYL 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           basic fibroblast growth factor - mouse
#formal_name Mus musculus #common_name house
17.Apr-1993 #sequence_revision 17.Apr-1993 #text_change
i6.Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                           recombinant gene expressed in Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ;
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 509; DB 2; Length 210;
Pred. No. 1.86e-85;
23; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        23; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 508; DB 2; 1 Pred. No. 3.13e-85;
                                                                                                                                                                                                                                                              ne GDB:FGF2; FGFB
##cross-references GDB:119910; OMIM:134920
                                            ##molecule_type protein
##residues 39-53;65-88 ##label PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #type complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    binding; mitogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #cross-references MUID:90201563
#accession C37360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 35.4%;
Best Local Similarity 54.5%;
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 35.3%;
Best Local Similarity 54.5%;
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              197 GOKAILFLPMSAKS 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       186 GOKAILFLPLPVSS 199
                                                                                                                                                                                                                                                                                                                                                       #map_position 4q25-4q27
#start_codon CTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##molecule_type mRNA
S46253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C37360
```

```
#submission
#description
                                                                                                                                                                                                                               #accession
##status
                                                                                                                                                 #authors
                                                                                                   ACCESSIONS
REFERENCE
                                         ORGANISM
                                                              DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              γò
                                                                                                                                                                                                                                                                                       Shimasaki, S.; Emoto, N.; Koba, A.; Mercado, M.; Shibata, F.; Cooksey, K.; Baird, A.; Ling, N. Biochem. Biochys. Res. Commun. (1988) 157:256-263
Complementary DNA cloning and sequencing of rat ovarian basic fibroblast growth factor and tissue distribution study of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #authors El-Husseini, A.E.D.; Paterson, J.A.; Myal, Y.; Shiu, R.P.C.
#journal Biochim. Biophys. Acta (1992) 1131:314-316
#title PCR detection of the rat brain basic fibroblast growth factor (bFGF) mRNA containing a unique 3' untranslated region.
#cross-references MUID:92329546
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##cross-references EMBL:X61697; NID:956143; PIDN:CAA43863.1; PID:956144 CLASSIFICATION #superfamily fibroblast growth factor growth factor growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##residues 1.154 ##label KUR ##cross-references EMBL:X07285; NID:956204 ##cross-references EMBL:X07285; NID:956204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #domain signal sequence #status predicted #label SIG\
#product basic fibroblast growth factor #status
prodicted #label MAT
#length 1154 #molecular-weight 17139 #checksum 3026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Kurokawa, T.; Seno, M.; Igarashi, K.
Nucleic Acids Res. (1988) 16:5201
Nucleotide sequence of rat basic fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                66 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    83 AMKEDGRLLASKCVTEECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGSKTGP 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            23 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYL 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                     #formal_name Rattus norvegicus #common_name Norway rat
21-May-1990 #sequence_revision 21-May-1990 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 508; DB 2; Length 154;
Pred. No. 3.13e-85;
23; Mismatches 36; Indels
                                                                                                                         A31674 #type complete
basic fibroblast growth factor precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##status preliminary; translation not shown
##molecule_type mRNA
##residues 35-154 ##label ELH
                                                                                                                                                                                                                            16-Jul-1999
A31674; S00876; S24309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #cross-references MUID:88262516
#accession S00876
                                                                                                                                                                                                                                                                                                                                                                                                                     #cross-references MUID:89061721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 35.3%;
Best Local Similarity 54.5%;
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              141 GOKAILFLPMSAKS 154
                     141 GOKAILFLPMSAKS 154
                                                                                                                                                                                                                                                                                                                                                                                                 its mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                      #accession A31674
##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           $24309
                                                                                                                                                                  ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #accession
                                                                                                                                                                                                                                                                                                                                  #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #journal
                                                                                                     74
                                                                                                                                                                                                                                                                                             #authors
                                                                                                                                                                                                                                                  ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1-9
10-154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SUMMARY
                                                                                                   RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                         ŏ
```

e :

#type fragment

531622

15

RESULT ENTRY

```
Ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Kusewitt, D.F.; Sabourin, C.L.K.; Budge, C.L.; Ley, R.D. submitted to the EMBL Data Library, September 1992 Characterization of CDNA encoding basic fibroblast growth factor of the marsupial Monodelphis domestica.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          93 AMKEDGRLLALKYVTEECFFFERLESNNYNTYRSRKYS--NWYVALKRTGQYKLGSKTGP 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          66 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         33 GHFKDPKRLYCKNGGFFLRIHPDGRVDGIREKSDPNIKLQLQAEERGVVSIKGVCANRYL 92
(Monodelphis domestica) (fragment) #formal_name Monodelphis domestica #formal_name Monodelphis formatica #formal_name #formal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 164;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 498; DB 2; Length 164
Pred. No. 5.61e-83;
22; Mismatches 37; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##rrsidues 1.164 ##label KUS ##cross-references EMBL:215154 CLASSIFICATION #superfamily fibroblast growth factor SUMMARX #length 164 #checksum 5156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Search completed: Tue Aug 29 15:55:58 2000 Job time: 18 secs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type DNA ##residues '1.'.'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 34.6%;
Best Local Similarity 54.5%;
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  151 GQKAILFLPMSAKS 164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              531622
                                                                                                                                                                                                                                                                                                                                                                                                                                                     S31622
```

*		*
****	(TM)	****
*****	' <u>-</u>	****
****	''	****
* * * * * * * *		******
******		******
*****		******
*****		******
**************************************		在各种的有效的 医多种性 化多种 医多种 医多种 医多种 医多种 医多种 医多种 医多种 医多种 医多种 医
****	<u> </u>	*******

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

protein - protein database search, using Smith-Waterman algorithm MPsrch\_pp

MasPar time 7.86 Seconds 788.874 Million cell updates/sec Tue Aug 29 15:53:11 2000; abular output not generated.

1 MAPARLFALLLFFVGGVAES......PRTHYGQKAILFLPLPVSSD 200 >US-09-121-0178-19 (1-200) from US09121017B.pep 1438 Description: Perfect Score: Sequence:

PAM 150 Gap 11 Scoring table:

85661 seqs, 30989116 residues Searched:

Minimum Match 0% Listing first 45 summaries

Post-processing:

swiss-prot38 Database:

Mean 45.099; Variance 70.202; scale 0.642 Statistics:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

		æ			SUMMARIES		
sult No.	Score	Ouery Match	Length DB	DB	8	Description	Pred. No.
٦	985	68.5	155	-	FGF1_HUMAN	HEPARIN-BINDING GROWTH	1.14e-221
7	196	67.2	155	-	FGF1_MESAU	HEPARIN-BINDING GROWTH	7.15e-217
m	996	67.2	155	H	FGF1_MOUSE	HEPARIN-BINDING GROWTH	1.32e-216
4	954	66.3	152		FGF1_PIG	HEPARIN-BINDING GROWTH	2.07e-213
ß	917	63.8	155	Н	FGF1_BOVIN	_	1.45e-203
9	916	63.7	155	m	FGF1_CHICK	HEPARIN-BINDING GROWTH	2.66e-203
7	522	36.3	158	-	FGF2_CHICK	HEPARIN-BINDING GROWTH	3.42e-100
œ	516	35.9	155	Н	FGF2_SHEEP	HEPARIN-BINDING GROWTH	1.17e-98
σ	216	35.9	155	Н	FGF2_BOVIN	HEPARIN-BINDING GROWTH	1.17e-98
10	509	35.4	155	Н	FGF2_HUMAN	HEPARIN-BINDING GROWTH	7.18e-97
11	508	35.3	154		FGF2_MOUSE	HEPARIN-BINDING GROWTH	1.29e-96
12	508	35.3	154	Н	FGF2_RAT	HEPARIN-BINDING GROWTH	1.29e-96
13	498	34.6	156	Н	FGF2_MONDO	HEPARIN-BINDING GROWTH	4.58e-94
14	493	34.3	155	Н	FGF2_XENLA	HEPARIN-BINDING GROWTH	8.58e-93
15	466	32.4	137	Н	FGF2_RABIT	HEPARIN-BINDING GROWTH	6.09e-86
16	448	31.2	198	Н	SDC4_HUMAN	SYNDECAN-4 PRECURSOR (	2.14e-81
17	360	25.0	209	Н	FGF9_XENLA	GLIA-ACTIVATING FACTOR	1.72e-59
18	350	24.3	208	ч	FGF9_MOUSE	GLIA-ACTIVATING FACTOR	4.85e-57
19	350	24.3	208	П	FGF9_HUMAN	GLIA-ACTIVATING FACTOR	4.85e-57
20	350	24.3	208	-	FGF9_RAT	GLIA-ACTIVATING FACTOR	4.85e-57
21	329	22.9	207	Ч	FGFG_HUMAN	FIBROBLAST GROWTH FACT	6.26e-52
22	324	22.5	207	П	FGFG_RAT	FIBROBLAST GROWTH FACT	1.01e-50
23	302	21.0	194	Н	FGF7_SHEEP	KERATINOCYTE GROWTH FA	1.97e-45

[5] SEQUENCE FROM N.A.

1.03e-44	9.22e-44	1:59e-43	4.24e-42	5.69e-40	5.69e-40	1.69e-39	1.69e-39	2.90e-39	4.98e-39	8.55e-39	1.47e-38	1.47e-38	4.33e-38	1.27e-37	6.41e-37	6.41e-37	3.21e-36	9.39e-36	7.99e-35	1.36e-34	1.36e-34
KERATINOCYTE GROWTH FA	KERATINOCYTE GROWTH FA	SYNDECAN-4 PRECURSOR (	FIBROBLAST GROWTH FACT	KERATINOCYTE GROWTH FA	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	SYNDECAN-4 PRECURSOR (	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT									
FGF7_HUMAN	FGF7_MOUSE	SDC4_RAT	FGFA_XENLA	FGFA_RAT	FGF5_MOUSE	FGFA_HUMAN	FGF5_RAT	FGF4_CHICK	FGFB_XENLA	FGFE_MOUSE	FGFA_MOUSE	FGFE_HUMAN	FGF7_RAT	FGF5_HUMAN	FGF4_BOVIN	FGF3_BRARE	FGFB_HUMAN	SDC4_MOUSE	FGFB_MOUSE	FGF4_HUMAN	FGFC_HUMAN
7	-	٦	٦	Н	ч	~	-	-	Н	7	-	-	Н	Н	-	Н	Н	Н	Н	П	7
194	194	202	187	215	264	208	266	194	192	247	209	247	194	268	206	256	225	198	225	206	. 243
20.8	20.5	20.4	20.0	19.4	19.4	19.3	19.3	19.2	19.1	19.1	19.0	19.0	18.8	18.7	18.5	18.5	18.3	18.2	17.9	17.8	17.8
299	295	294	288	279	279	277	277	276	275	274	273	273	271	269	266	266	263	261	257	256	256
24	25	56	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

### ALIGNMENTS

```
FGF1_HUMAN STANDARD; PRT; 155 AA.
P05230; P07502;
13-AUG-1987 (Rel. 05, Created)
13-AUG-1989 (Rel. 05, Last sequence update)
15-JUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) (EGGF-
                                                                                                                                                                                                                  SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
Jaye M., Howk R., Burgess W., Ricca G.A., Chiu I.-M., Ravera M.W.,
O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;
"Human endothelial cell growth factor: cloning, nucleotide sequence,
and chromosome localization.";
Science 233:541-545(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                     Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding growth factor and its expression in fetal tissues."; Mol. Cell. Biol. 9:2387-2395(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
MEDILIE: 9013637.
METGIA A., Tischer E., Graves D., Tumolo A., Miller J.,
Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;
"Structural analysis of the gene for human acidic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Chiu I.M., Wang W.P., Lehtoma K.; Alternative splicing generates two forms of mRNA coding for human heparin-binding growth factor 1."; Oncogene 5:755-762(1990).
                                                                                                                                                 FGFI OR FGFA.
Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Biochem. Biophys. Res. Commun. 164:1121-1129(1989).
                                                                                                                                                                                                                                                                                                                                                        [2]
SEQUENCE FROM N.A.
TISSUE-BRAIN STEM;
MEDLINE; 89343957.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
TISSUE-BRAIN STEM;
MEDLINE; 90265618.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     factor."
RESULT
```

```
Zhao X.M., Yeoh T.K., Hiebert M., Frist W.H., Miller G.G.; The expression of acidic fibroblast growth factor (heparin-binding growth factor-1) and cytokine genes in human cardiac allografts and T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gautschi P., Frater-Schroeder M., Boehlen P.; "Partial molecular characterization of endothelial cell mitogens from human brain: acidic and basic fibroblast growth factors.";
MEDLINE; 92019819.
Wang W.P., Quick D., Balcerzak S.P., Needleman S.W., Chiu I.M.;
"Cloning and sequence analysis of the human acidic fibroblast growth
factor gene and its preservation in leukemia patients.";
Oncogene 6:1521-1529(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Harper J.W., Strydom D.J., Lobb R.R.;
"Human class I heparin-binding growth factor: structure and homology
to bovine acidic brain fibroblast growth factor.";
Biochemistry 25:4097-4103(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Machine, Johnson W. Thomas K.A.; Blaber M., Disalvo J., Thomas K.A.; "X-ray crystal structure of human acidic fibroblast growth factor.";
                                                                                                                                                                                 "An acidic fibroblast growth factor protein generated by alternate splicing acts like an antagonist."; J. Exp. Med. 175:1073-1080(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.; "Human brain-derived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitogenic activities."; Biochem. Blophys. Res. Commun. 135:541-548(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE; 94358885.
Pineda-Lucena A., Jimenez M.A., Nieto J.L., Santoro J., Rico M.,
Gimenez-Gallego G.;
                                                                                                                                                                                                                                                                                                                                                                                                                                        Crumley G., Dionne C.A., Jaye M.; "The gene for human acidic fibroblast growth factor encodes two upstream exons alternatively spliced to the first coding exon."; Biochem. Biophys. Res. Commun. 171:7-13(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    growth factor.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.; "The complete amino acid sequence of human brain-derived acidic fibroblast growth factor."; Blochem. Blophys. Res. Commun. 138:611-617(1986).
                                                                                                                                        Li Y.L., Kha H., Golden J.A., Migchielsen A.A.J., Goetzl E.J.
Turck E.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE: 87048871.
Gautschi-Sova P., Mueller T., Boehlen P.;
'Amino acid sequence of human acidic fibroblast grammino acid sequence of numan acidic fibroblast grammino acid sequence of human acidic fibroblast grammin. 140:874-880(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          X-RAY CRYSTALLOGRAPHY (2.0 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                      Transplantation 56:1177-1182(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Biochemistry 35:2086-2094(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EBS Lett. 204:203-207(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRUCTURE BY NMR OF 24-155.
                                                                                                                                                                                                                                                            SEQUENCE OF 1-154 FROM N.A. MEDLINE; 94069734.
                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 1-40 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE OF 16-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE OF 16-155.
MEDLINE; 86295741.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE OF 16-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE OF 16-49. MEDLINE; 86275260.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE OF 16-47. MEDLINE; 86186784.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            96194129.
                                                                                                                                                                                                                                                                                                                                                                                                                         90365758.
                                                                                                                    SEQUENCE FROM N.A. MEDLINE; 92202857.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    86275260.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 86296647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE:
                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE;
                                                                                                                                                                                                                                                                                                                                  growth f
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                   action of suramins and suradistas.";
J. Mol. Biol. 281:899-915(1998).
-!- FUNCTION: THE HEPRAIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS.
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFFGF.
PROSTIE; P800247; HBGFFGF.
Growth factor; Mitogen; Vascularization; Heparin-binding; Acetylation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -!- SUBUNIT: MONOMER.
-!- MISCELLANDOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
THAN DOES BFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
"IH-NMR assignment and solution structure of human acidic fibroblast growth factor activated by inositol hexasulfate."; J. Mol. Biol. 242:81-98(1994).
                                                                                                                                                                                                                                                                                                                                                                                1,3,
                                                                                                                                                                   n
:
                                                                                                                                                                                            Rico M., Gimenez-Gallego G.;
Three-diamensional structure of acidic fibroblast growth factor in
solution: effects of binding to a heparin functional analog.";
J. Mol. Biol. 264:162-178(1996).
                                                                                                                                                                 Pineda-Lucena A., Jimenez M.A., Lozano R.M., Nieto J.L., Santoro Rico M., Gimenez-Gallego G.;
                                                                                                                                                                                                                                                                                                                                                                          Lozano R.M., Jimenez M., Santoro J., Rico M., Gimenez-Gallego G. "Solution structure of acidic fibroblast growth factor bound to 6-naphthalenetrisulfonate: a minimal model for the anti-tumoral
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HEPARIN-BINDING GROWTH FACTOR 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACETYLATION.
HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
F586E8BFB09F1580 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; M13361; AAA79245.1; -.
EMBL; X51943; CAA36266.1; -.
EMBL; M30492; AAA52446.1; -.
EMBL; M30491; AAA52446.1; JOINED.
EMBL; M30491; AAA52446.1; JOINED.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAA52638.1; JOINED.
AAB29057.1; -...CAA46661.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17460 MW;
                                                                                                                                                                                                                                                                                                                          STRUCTURE BY NMR OF 25-155.
                                                                                                        STRUCTURE BY NMR OF 24-155.
MEDLINE; 97107535.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  M60515; AAA51672.1;
M60516; AAA51673.1;
M23087; AAA52638.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PFAM; PF00167; FGF; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PDB; 2AXM; 22-APR-98.
PDB; 1RML; 11-NOV-98.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A26386; A26386.
A33665; A33665.
S18217; S18217.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                22-APR-98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A24243.
A24301.
A24662.
A24662.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1
16
2
24
113
155 F
                                                                                                                                                                                                                                                                                                                                                        98387896.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                M23086;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A24662;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A24820;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3D-structure,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MIM; 131220;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1AXM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MOD_RES
BINDING
BINDING
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                        MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL;
EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PPIR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PDB;
                                                                                           16]
                SO THE TELET TO DO SO THE SECOND SECO
```

```
RESULT 3
ID FGF1_MOUSE
AC P10935;
                                                                                                                                                 SPECIES-RAT
                                                                                                                                                                                      (HBGF-1
                                     7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                   MEDLINE; 9027021.
MEDLINE; 90270291.
Hall J.A., Harris M.A., Malark M., Mansson P.E., Zhou H., Harris S.E.; "Characterization of the hamster DDT-1 cell aFGF/HGBF-I gene and cDNA and its modulation by steroids."; Cell. Biochem. 43:17-26(1990).
J. Cell. Biochem. 43:17-26(1990).
J. Cell. Biochem. 43:17-26(1990).
J. Cell. Biochem. 43:17-26(1990).
NIVION THE HEPRINI MITOGENS FOR A VARIETY OF CELL TYPES IN VITO. THEERE ARE DIFFERRNCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                       -I MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY THAN DOES BFGF.
-I SINTLARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
PIR: A60721.
HSSP: P05230: 2AXM.
HSSP: P05230: 2AXM.
PRAM: PF00167: FGF: 1.
PRINTS: PR00263: HEGFEFF.
PRINTS: PR00263: HEGFEFF.
PROSITE: PS00247: HBGF-FGF: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-FEB-1994 (Rel. 28, Created)
01-FEB-1994 (Rel. 28, Last sequence update)
15-JUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SS SDDFELSGSGDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV 114
                                     69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                    Gaps
                                    13 TEKFNLP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDOHIOLOLSAESVGEV
                                                                                                                                                                                                                                        Mesocricetus auratus (Golden hamster).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
                    ж
Э
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HEPARIN-BINDING GROWTH FACTOR 1. HEPARIN (POTEWITAL).
4 HEPARIN (POTEWITAL).
4 4 HESEC760E412CC5 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 155;
 Length 155;
                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                     .;
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 967; DB 1; LA
Pred. No. 7.15e-217;
2; Mismatches 2;
Score 985; DB 1; L
Pred. No. 1.14e-221;
                  Mismatches
                                                                                                                                                                 155 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SIMILARITY.
                                                                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Βĭ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       155 AA; 17403 MW;
68.54;
93.88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         67.2%;
larity 97.0%;
Conservative
                   Conservative
                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                15
155
28
                                                                                                                                                                                                                       GROWTH FACTOR) (AFGF).
         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
es 131; Conser
 Local Sam
137;
                                                                                                                                                                                                                                                                    Mesocricetus
                                                                                                                                                                                                                                 FGF1 OR FGF-
                                                                                                                                                       LT 2
FGF1_MESAU
P34004;
Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PROPEP
          Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                          RESULT
                                                                                                                                                                                                             WTT FF
                                                                                                          g
                                    g
                                                     ò
                                                                       셤
                                                                                          ò
                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        õ
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           and its expression in the adult and developing mouse brain...;
J. Biol. Chem. 271:30263-30271(1996).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOCENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                           01-JUL-1989 (Rel. 11, Created)
01-JUL-1989 (Rel. 11, Last sequence update)
15-JUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hebert J.M., Basilico C., Goldfarb M., Haub O., Martin G.R.; "Isolation of cDNAs encoding four mouse FGF family members and characterization of their expression patterns during embryogenesis."; Dev. Biol. 138:454-463(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -i- SUBUNIT: MONOMER.
-i- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Н
                                                                                                                                                                                                                                                                         Mus musculus (Mouse), and Rattus norvegicus (Rat).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Characterization of the 1B promoter of fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDIINE; 89240051.
Goodrich S., Yan G.C., Bahrenburg K., Mansson P.E.;
"The nucleotide sequence of rat heparin binding growth factor 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Alam K.Y., Frostholm A., Hackshaw K.V., Evans J.E., Rotter A.,
Chiu I.M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE; 97128312.
Madiai F., Hackshaw K.V., Chiu I.M.;
"Cloning and characterization of the mouse Fgf-1 gene.";
Gene 179:231-236(1996).
   Ą.
155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Nucleic Acids Res. 17:2867-2867(1989)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; U36457; AAC52969.1; JOINED.
EMBL; U36458; AAC52969.1; JOINED.
EMBL; U67610; AAC52907.1; -.
PIR; SO4147; SC4147.
PIR; D37360; D37360.
HSSP; P05230; ZAXM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
SPECIES-MOUSE; STRAIN-BALB/C;
MEDLINE; 97094746.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; X14232; CAA32448.1; -. EMBL; M30641; AAA37618.1; -. EMBL; U36459; FAC52969.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MGD; MGI:95515; FGF1.
PFAM; PF00167; FGF; 1.
PRINTS; PR00262; IL1HBGF.
                                                                                                                                                                                                                                                   FGF1 OR FGF-1 OR FGFA.
                                                                                                                                                                                                              (AFGF)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE; 90201563.
                                                                                                                                                                                                              GROWTH FACTOR)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SPECIES-MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SPECIES=MOUSE
```

```
BINDING
CONFLICT
CONFLICT
NON_TER
SEQUENCE
                                                                                                                                                                           Match
                                                                                          BINDING
                                                        PROPEP
                                                                    CHAIN
                                                                                CHAIN
                                                                                                                                                                                                                                                                                                                                        175
                                                                                                                                                                                               Matches
                                                                                                                                                                            Query
                                                                                                                                                                                                                                                                                                                                                                           RESULT
                                                                                                                                                                                                                                                                                                                                                                                       SETTTETT
                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                              6
                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EUT. J. Biochem. 181:67-73(1989).

-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE OF 22-41.
MEDLINE; 89231704.
Quinkler W., Maasberg M., Bernotat-Danielowski S., Luethe N.,
Sharma H.S., Schaper W.;
"Isolation of heparin-binding growth factors from bovine, porcine and canine hearts.";
                                                                                                                                                                                                                                                                                                                                                   01-FEB-1996 (Rel. 33, Last sequence update)
15-VUL-1999 (Rel. 34, Last annotation update)
HERARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST GROWTH FACTOR) (ALPHA-ENDOTHELIAL CELL GROWTH FACTOR)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SUBUNIT: MONOMER.
MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
                                                                                                                                                                 81 AMDTEGLLYGSQTPNEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                             -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                   21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQYL 80
                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Schmidt M., Sharma H.S., Schott R.J., Schaper W.; "Amplification and sequencing of mRNA encoding acidic fibroblast growth factor (aFGF) from porcine heart."; Blochem. Blophys. Res. Commun. 180:853-859(1991).
                                                                                                                             ö
                                             ä
                                            HEPARIN-BINDING GROWTH FACTOR HEPARIN (POTENTIAL).
R8800E4FF0FBA4161 CRC64;
                                                                                                      Length 155;
         PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                            Indels
                                                                                                               Pred. No. 1.32e-216;
                                                                                                      DB 1;
                                                                                                                                                                                                                                                                                                                  152 AA.
                                                                                                                            3; Mismatches
                                                                                                     Score 966;
                                                                                                                                                                                                                                                                                                                  PRT;
                                            16 155 HE
24 28 HE
113 116 HE
155 AA; 17418 MW;
                                                                                                                                                                                                                                                                                                                                       01-FEB-1991 (Rel. 17, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; X60317; CAA42869.1; -.
                                                                                                    67.2%;
ilarity 96.3%;
Conservative
                                                                                                                                                                                                                                              GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                               STANDARD;
                                   155
155
116
                                                                                                                 Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     THAN DOES BFGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          92062117
                                                                                                                                                                                                                                                                                                                                                                                                             FGF1 OR FGF-1.
Sus scrofa (Pig).
                                                                                                                             130;
                                                                                                                                                                                                                                                                                                                                                                                                   FRAGMENT)
                                                                              SEQUENCE
                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE;
                                                       BINDING
                                                                    BINDING
                               PROPEP
                                             CHAIN
                                                                                                                                                                                                                                              141
                                                                                                                            Matches
S F F F F S
                                                                                                                                                     ద
                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                  ŏ
```

```
Halley C., Courtois Y., Laurent M.; "Nucleotide sequence of bovine acidic fibroblast growth factor CDNA."; Nucleic Acids Res. 16:10913-10913(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                70 YIKSTETGQYLAMDISGLLYGSQIPSEECLFLERLEENHYNTYISKKHAEKNWFVGLKKN 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              115 YIKSTETGQYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKN 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      23-OCT-1986 (Rel. 02, Created)
01-MAR-1989 (Rel. 10, Last sequence update)
15-UUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST
GROWTH FACTOR) (AFGF) (PROSTATROPIN) (ENDOTHELIAL CELL GROWTH FACTOR
BETA AND ALPHA CHAINS) (ACIDIC EXE-DERIVED GROWTH FACTOR II) (EDGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            is the
                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Alterio J., Halley C., Brou C., Soussi T., Courtois Y., Laurent M., "Characterization of a bovine acidic FGF cDNA clone and its expression in brain and retina."; FEBS Lett. 242:41-46(1988).
                                                                                                                                                      ENDOTHELIAL CELL GROWTH FACTOR ALPHA. HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
C -> S (IN REF. 2).
R -> Y (IN REF. 2).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bos cautus (povine).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoldea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE OF 2-155.

BUTGELS 8 87016518.

BUTGESS W.H., Mehlman T., Marshak D.R., Fraser B.A., Maciag T.;

Structural evidence that endothelial cell growth factor beta is t

precursor of both endothelial cell growth factor alpha and acidic
fibroblast growth factor.";

Proc. Natl. Acad. Sci. U.S.A. 83:7216-7220(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              13 TEKFNLP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEV
                                                                                                                                                                                                                                                                                                                                                                                                                             .,
3
                                                                                                                                      HEPARIN-BINDING GROWTH FACTOR 1.
                                                                                                                                                                                                                                                                                                                                                                      Length 152;
                                                                                                                                                                                                                                                                                                                                                                                                                          3; Indels
                                                                               Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                                       17103 MW; AE853B0A92F9ABF4 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                            Pred. No. 2.07e-213;
6; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                           Score 954; DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  155 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OR FGF-1 OR FGFA OR HBGF-1 OR AFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           130 GSCKRGPRTHYGQKAILFLPLPV 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HSSP; P05230; 2AXM.
PFAM; PF00167; FGF; 1.
PROSITE; PS00247; HBGF_FGF;
Growth factor; Mitogen; Vasc
                                                                                                                                                                                                                                                                                                                                                                           66.38;
                                                                                                                                                                                                                                                                                                                                                                                                 1 Similarity 91.6%; 131; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STANDARD;
                                                                                                                                   >152
>152
>152
18
                                                                                                                                                                                                                                           31
39
152 :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bos taurus (Bovine)
                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bovidae; Bovinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE OF 2-155.
MEDLINE; 87026586.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE; 89078619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE; 89083506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TISSUE-RETINA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TISSUE-RETINA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LT 5
FGF1_BOVIN
P03968;
```

ENDOTHELIAL CELL GROWTH FACTOR BETA. HEPARIN-BINDING GROWTH FACTOR 1. ENDOTHELIAL CELL GROWTH FACTOR ALPHA.

ACETYLATION. HEPARIN (POTENTIAL). HEPARIN (POTENTIAL).

```
DR PIR; A24477; A25043.

DR PIR; B24663; B24663.

DR PIR; B24663; B24663.

DR PIR; S02102.

DR PDB; IARC; 31-0CT-93.

DR PRAM; PR00167; FCF; 1.

DR PRINTS; PR00262; ILLHBGF.

DR PRINTS; PR00263; HBGFFGF.

DR PROSITE; PS00247; HBGFFGF.

DR PROSITE; PS00247; HBGF-FGF; 1.

FT Growth factor; Mitogen; Vascularization; Heparin-binding; Acetylation; FT PROPEP.

FT CHAIN 2 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         141 GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         440
443
57
57
69
69
73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity
les 124; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MOD_RES
BINDING
BINDING
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRAND
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                        CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HELIX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HELIX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
           SOTING THE FEET OF THE FEET OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bloinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities regulates a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   factors.";
Science 251:90-93(1991).
Science 251:90-93(1991).
IS FUNCTION: THE LEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.

--- SUBJUNIT: MONOMER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE; 89231704.
Quinkler W., Matsberg M., Bernotat-Danielowski S., Luethe N.,
Sharma H.S., Schaper W.;
"Isolation of heparin-binding growth factors from bovine, porcine and
canine hearts.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY THAN DOES BEGF. SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                            Gimenez-Gallego G., Rodkey J., Bennett C., Rios-Candelore M.,
Disalvo.J., Thomas K.;
"Brain-derived acidic fibroblast growth factor: complete amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE; 91095983, Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T., Hsu B.T., Rees D.C.; "Three-dimensional structures of acidic and basic fibroblast growth
Crabb J.E., Armes L.G., Carr S.A., Johnson C.M., Roberts G.D., Bordoli E.S., McKeehan W.L.; "Complete primary structure of prostatropin, a prostate epithelial cell growth factor."; Biochemistry 25:4988-4993(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Abraham J.A., Mergia A., Whang J.L., Tumolo A., Friedman J., Hjerrild K.A., Gospodarowicz D., Fiddes J.C.; "Nucleotide sequence of a bovine clone encoding the anglogenic protein, basic fibroblast growth factor."; Science 233:245-548(1986).
                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE OF 16-44, AND COMPOSITION.
MEDLINE; 86355750.
Boehlen F., Esch F., Baird A., Gospodarowicz D.;
"Acidic ilbroblast growth factor (FGF) from bovine brain: amino-terminal sequence and comparison with basic FGF.";
EMBO J. 4:1851-1956(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE OF 1-18 FROM N.A.
Philippe J.M., Renaud F., Desset S., Laurent M.;
Submitted (JUL-1912) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eur. J. Biochem. 181:67-73(1989)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; M13439; AAA30516.1; -. EMBL; X13221; CAA31610.1; -. EMBL; X14032; CAA32192.1; -..
                                                                                                                                                                                                                                                                                                                sequence and homologies.";
Science 230:1385-1388(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL: M35608; AAA30517.1; --
EMBL: X66446; CAA47063.1; --
EMBL: M97660; AAA30563.1; --
EMBL: M97661; AAA30564.1; --
PIR; A01385; GKBOA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE OF 16-56 FROM N.A. MEDLINE; 86261806.
                                                                                                                                             (5)
SEQUENCE OF 16-155.
                                                                                                                                                                                                     8070224.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 16 45.
```

```
ö
                                                                                                                       21 GNYKKPKLLYCSNGGYFLRILPDGTVDGTKDRSDQHIQLQLCAESIGEVYIKSTETGQFL 80
                                                    Gaps
                                                   ö
                        Length 155;
                                                  Indels
17493 MW; F636641F189F9BFD CRC64;
                        Score 917; DB 1; L
Pred. No. 1.45e-203;
                                                  6; Mismatches
                                                                                                                                                                                                                                              FGF1_CHICK STANDARD; PRT; 155 AA P19596; 01-FEB-1991 (Rel. 17, Created) 01-FEB-1996 (Rel. 33, Last sequence update)
```

ဖ

186 GOKAILFLPLPVSSD 200

ď

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its mose by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@lsb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                  Riseau W., Gautschi-Sova P., Boehlen P.;
"Endothelial cell growth factors in embryonic and adult chick brain
are related to human acidic fibroblast growth factor.";
EMBO J. 7:559-9624[1988].
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
IN VIVO AND ARE POTENT MITGOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
15-JUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST
GROWTH FACTOR) (AFGF) (ALPHA-ENDOTHELIAL CELL GROWTH FACTOR).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SUBUNIT: MONDMER.
MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    66 ANYKIPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         81 AMDJNGLLYGSQLPGEECLFLERLEENHYNTYISKKHADKNWFVGLKKNGNSKLGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          126 AMD:DGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 185
                                                                    Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;

    -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21 GNYKPELLYCSNGGHFLRILPDGKVDGTRDRSDQHIQLQLSAEDVGEVYIKSTASGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ENDOTHELIAL CELL GROWTH FACTOR ALPHA. HEPARIN (POTENTIAL).
                                                                                                                                                                                                  Schnurch H., Risau W.; "Differentiating and mature neurons express the acidic fibroblast growth factor gene during chick neural development."; Development 111:1143-1154(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HEPARIN-BINDING GROWTH FACTOR 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 1; Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 916; DB 1; henyun Pred. No. 2.66e-203;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRINTS; PR00262; ILLHBGF.
PRINTS; PR00247; HBGFFGF. 1.
PROWITE; PS00247; HBGFFGF. 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                          [2]
SEQUENCE FROM N.A.
Martin G.R., Han J.K.;
Submitted (JUL-1995) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8EDB70545E2B4365 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HEPARIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL, S63263; AAB19629.1; -.
EMBL, U31863; AAA80310.1; -.
EMBL, S63261; AAD13942.1; -.
PIR; S02639; S02639.
HSSP; P05330; ZAXM.
PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      17322 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          63.7%;
90.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            141 GOMILFLPLPVSAD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               155
155
28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
ses 122, Conserves
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         THAN DOES BPGF
                                                                                                                                                                 SEQUENCE FROM N.A. MEDLINE; 91347925.
                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE; 88296438
                                                       OR FGF-1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BINDING
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CHAIN
BINDING
                                                                                                                             Gallus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 between the Swiss Institute of Bioinformatics and the EMBL outstation—the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ä
                                                                                                                                                                                                                                                                                                                                                                                                       MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                66 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVXIKSTETGQYL 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            87 AMKEDGRLLALKCATEECFFFERLESNNYNTYRSRKYSD--WYVALKRTGQYKPGPKTGP 144
                                                                                                                                                                                                                                                                                                                                                                                                                                     SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                           01-FEB-1996 (Rel. 33, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            27 GHFKDPKRLYCKNGGFFLRINPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVSANRFL 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                         Z,
                                                                                                                                                                                                                                                     Borja A.Z., Zeller R., Meijers C.;
"Expression of alternatively spliced bFGF first coding exons and antisense mRNAs during chicken embryogenesis.";
Dev. Biol. 157:110-118(1993).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC PIN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES I VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ;;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BY SIMILARITY. HEPARIN-BINDING GROWTH FACTOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 158;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PFAM; PF00167; FGF; 1.
PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFFGF.
PROSITE; PR00247; HBGFFGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
78698684C17F1816 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 522; DB 1; L
Pred. No. 3.42e-100;
23; Mismatches 36;
               158 AA.
                                                                                                                                                                                                                                                                                                                                                                    CONCENTRATION OF THESE 2 GROWTH FACTORS. SUBUNIT: MONOMER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        155 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17374 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; M95707; AAA48617.1; -.
HSSP; P09038; 1BFF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              36.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        186 GOKAILFLPLPVSS 199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   158
158
122
                                                                                                           GROWTH FACTOR) (BFGF).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13 1
30
119 1
158 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        145 GOKAILFLPMSAKS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity
hes 73; Conserv
                                                                                                                                                                                                                                           MEDLINE; 93246053.
                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                             FGF2 OR FGF-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FGF2_SHEEP
           FGF2_CHICK
P48800;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BINDING
                                                                                                                                                                                          Gallus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
```

```
factors.";
Science 251:90-93(1991).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
IN.VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
                                           23-0CT-1986 (Rel. 02, Created)
23-0CT-1986 (Rel. 02, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PEECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (PROSTATROPIN) [CONTAINS: KIDNEY-DERIVED GROWTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE; 86016731.
Esch F., Baird A., Ling N., Ueno N., Hill F., Denoroy L., Klepper R., Gospodarowicz D., Boehlen P., Guillemin R.; Primary structure of bovine pituitary basic fibroblast growth factor (FGF) and comparison with the amino-terminal sequence of bovine brain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ueno N., Baird A., Esch F., Shimasaki S., Ling N., Guillemin R.; "Purification and partial characterization of a mitogenic factor from bovine liver: structural homology with basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Baird A., Esch F., Boehlen P., Ling N., Gospodarowicz D.; "Isolation and partial characterization of an endothelial cell growth factor from the bovine kidney: homology with basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.; "Human basic fibroblast growth factors: nucleotide sequence, genomic organization, and expression in mammalian cells."; cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hsu B.T., Rees D.C.; "Three-dimensional structures of acidic and basic fibroblast growth
                                                                                                                                                                             FGF2 OR FGF-2.
Bos taurus (Bovine).
Eukaryota; Metazoa; Chordata; Cranlata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantla; Pecora; Bovoldea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               basic fibroblast
                                                                                                                                                                                                                                                                                                                                                             Abraham J.A., Mergia A., Whang J.L., Tumolo A., Friedman J.,
Hjerrild K.A., Gospodarowicz D., Fiddes J.C.;
"Nucleotide sequence of a bovine clone encoding the angiogenic
protein, basic fibroblast growth factor.";
Science 233:545-548(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE; 91095983.
Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T., Hen R.T., Rees D.C.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ueno N., Baird A., Esch F., Ling N., Guillemin R.; "Isolation of an amino terminal extended form of b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      lochem. Biophys. Res. Commun. 138:580-588(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Proc. Natl. Acad. Sci. U.S.A. 82:6507-6511(1985).
         155 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Regul. Pept. 16:135-145(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Regul. Pept. 12:201-213(1985)
      STANDARD;
                                                                                                                                                                                                                                                                          3ovidae; Bovinae; Bos.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 10-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              86295737.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE; 86095426.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE; 87119165.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE OF 25-41.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE OF 21-40.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                             86261306.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE OF 1-9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FISSUE=KIDNEY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 growth factor
    FGF2_BOVIN
P03969;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         acidic FGF
                                                                                                                                                                                                                                                                                                                                             MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          factor.
         This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -i- SUBUNIT: MONOMER.
-i- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      66 ANYKRPKLIYCSNGGHFLRILDPGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              84 AMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGPKTGP 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
01-FEB-1991 (Rel. 17, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            24 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL 83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2; Gaps
                                                                                                                               Ovis aries (Sheep).
Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FUNCTION: THE HEPARIN-BÍNDING GROWTH FACTORS ARE ANGIOGENIC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS,
                                                                                                                                                                                                                                                                                                                                                                                                                         "Primary structure of ovine pituitary basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                        MEDLINE; 88055577.
Simpson R.J., Moritz R.L., Lloyd C.J., Fabri L.J., Nice E.C., Rubira M.R., Burgess A.W.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CELL ATTACHMENT SITE (POTENTIAL)
CELL ATTACHMENT SITE (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HEPARIN-BINDING GROWTH FACTOR 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRINTS; PR00262; ILLHBGF.
PRINTS; PR00247; HBGFFGF; 1.
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 516; DB 1; Length 155
Pred. No. 1.17e-98;
22; Mismatches 36; Indels
                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
Sutton R., Ward W.G., Raphael K.A., Cam G.R.;
Submitted (SEP-1994) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
B5F2364BA610606D CRC64;
                                                                                          GROWIH FACTOR) (BFGF) (PROSTATROPIN)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    119 H
17280 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEBS Lett. 224:128-132(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; L36136; AAA31519.1; -. PIR; S00185; S00185. HSSP; P09038; 1BFF. PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity 55.2%;
74; Conservative
                                                                                                                                                                                                    Bovidae; Caprinae; Ovis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        142 GOKAILFLPMSAKS 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     . . 48
90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity
                                                                                                                                                                                                                                                                                                                                        SEQUENCE OF 9-155
                                                                                                                 OR FGF-
```

factor.

cell growth

BINDING Query Match

Best Loca Matches

g ò 셤 ð 셤 ò

BINDING

FT SO

PROPEP CHAIN

```
MEDLINE; 86275260.
Gautschi P., Frater-Schroeder M., Boehlen P.;
"Partial molecular characterization of endothelial cell mitogens from
human brain: acidic and basic fibroblast growth factors.";
FEBS Lett. 204:203-207(1986).
                                                                                                                                                                                                                                                                                    01-NOV-1988 (Rel. 09, Last sequence update)
01-NOV-1997 (Rel. 35, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
GROWTH FACTOR) (BFGF) (PROSTATROPIN).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.;
"Human basic fibroblast growth factor: nucledtide sequence, genomic
organization, and expression in mammalian cells.";
Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "High molecular mass forms of basic fibroblast growth factor are initiated by alternative CUG codons.";
Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE; 86186784.
Gimenez-Callego G., Conn G., Hatcher V.B., Thomas K.A.;
Human brain-derived acidic and basic fibroblast growth factors:
amino terminal sequences and specific mitogenic activities.";
Biochem. Biophys. Res. Commun. 135:541-548(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sommer A., Brewer M.T., Thompson R.C., Moscatelli D., Presta M., Rifkin D.B.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'A form of human basic fibroblast growth factor with an extended
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Kurokawa T., Sasada R., Iwane M., Igarashi K.; "Cloning and expression of cDNA encoding human basic fibroblast growth factor.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Abraham J.A., Whang J.L., Tumolo A., Mergia A., Friedman J., Gospodarowicz D., Fiddes J.C.;
"Human basic fibroblast growth factor: nucleotide sequence and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Prats H., Kaghad M., Prats A.C., Klagsbrun M., Lelias J.M.,
Liauzun P., Chalon P., Tauber J.P., Amalric F., Smith J.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Commun. 144:543-550(1987).
                                                                                                                                                                                                                                                               01-NOV-1988 (Rel. 09, Created)
01-NOV-1988 (Rel. 09, Last seq
01-NOV-1997 (Rel. 35, Last ann
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EBS Lett. 213:189-194(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           genomic organization.";
EMBO J. 5:2523-2528(1986).
                                                                                                                                                                                                            STANDARD;
                                 142 GOKAILFLPMSAKS 155
                                                                  Biochem. Biophys. Res.
                                                                                                                                                                                                                                                                                                                                                                                                                FGF2 OR FGFB.
Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A. MEDLINE; 87213238.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE OF 10-35.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A. MEDLINE; 87053817.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A. MEDLINE; 87217066.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE OF 10-39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE; 89184522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            87162468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           [8]
SEQUENCE OF 2-22.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                terminus
                                                                                                                                                                           T 10
FGF2_HUMAN
P09038;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE;
                                 g
                                                                                                                                                                                                            THE SET THE SET OF SET 
                                                                                       δ
                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profil institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       66 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                84 AMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGPKTGP 141
                                                                                                                                                -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                24 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL 83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CELL ATTACHMENT SITE (POTENTIAL).
CELL ATTACHMENT SITE (POTENTIAL).
HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HEPARIN-BINDING GROWTH FACTOR 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PIR; A24663; GKBOB.

PIR; A24819; A24619.

PIR; A32879; A32878.

PBB; 1BAS; 31-0CT-93.

PFAM; PF00167; FGF; 1.

PRINTS; PR00262; ILIHBGF.

PRINTS; PR00263; HBGFEFF.

PROSITE; PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 516; DB 1; Length 155
Pred. No. 1.17e-98;
22; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BE6CE70FA6107129 CRC64;
                                                                                       MORE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KIDNEY-DERIVED GROWTH
                                                                                       MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17250 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; M13440; AAA30518.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 35.9%;
Best Local Similarity 55.2%;
Matches 74; Conservative
                                                               SUBUNIT: MONOMER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          148
155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      D-structure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRAND
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SITE
SITE
BINDING
BINDING
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HELIX
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAND
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HELIX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  URN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              URN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
   NAN WARE TEREFERENCE TEREFEREN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
```

factor

```
ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    84 AMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYT -- SWYVALKRTGQYKLGSKTGP 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       24 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL 83
                                                                                                                                                                                                                                                                                                                                                                                 HEPARIN-BINDING GROWTH FACTOR 2. CELL ATTACHMENT SITE (POTENTIAL). CELL ATTACHMENT SITE (POTENTIAL). HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 509; DB 1; Length 155;
Pred. No. 7.18e-97;
23; Mismatches 36; Indels
                                                                                                                                                                                                                                                    17254 MW; BE6CE13373007129 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     35.4%; silarity 54.5%; Conservative
                                                                                                                                                                                                                                                                                                                                                                    2FGF; 15-APR-92.
4FGF; 15-JUL-93.
1FGA; 15-JUL-93.
1BFB; 03-APR-96.
                                                                                                                                                                                       31-JAN-94.
30-APR-94.
08-NOV-96.
08-NOV-96.
              A26642.
B24243.
B24301.
B32878.
S00297.
                                                                                                                                                                         16-JUN-97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         144 1
148 1
155,AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best_Local Similarity
Matches 73; Conserv
                A26642; P
B24243; B
B24301; E
B32878; E
S00297; S
                                                                                                                                                         1BFC;
                                                                                                                                                                                          1BFG;
                                                                                                                                                                                                                          PDB; 1BLA;
                                                                                                                                                                                                           2BFH;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                 SITE
BINDING
BINDING
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HELIX
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TURN
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAND
                                                                                                                                                                                                                                                                                                                                                                                     CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HELIX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HELIX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             rurn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ద
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation. The European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce.or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          spectroscopy.";
Blochemistry 35:1352-13561(1996).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
-!- FUNCTION: THE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                Lawson R.K.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE; 97040521.
Moy F.J., Seddon A.P., Boehlen P., Powers R.;
High-resolution solution structure of basic fibroblast growth factor determined by multidimensional heteronuclear magnetic resonance
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -i- SUBUNIT: MONOMER.
-i- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                             Zhang J., Cousens L.S., Barr P.J., Sprang S.R.;
"Three-dimensional structure of human basic fibroblast growth factor,
a structural homolog of interleukin 1 beta.";
Proc. Natl. Acad. Sci. U.S.A. 88:3446-3451(1991).
                                                                                                                                                                                                                                                      growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS).
MEDLINE; 91095983.
Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
Hau B.T., Rees D.C.;
"Three-dimensional structures of acidic and basic fibroblast growth
             Story M.T., Esch F., Shimasaki S., Sasse J., Jacobs S.C., Lawson R.R. *Amino-terminal sequence of a large form of basic fibroblast growth factor isolated from human benign prostatic hyperplastic tissue."; Blochem. Biophys. Res. Commun. 142:702-709(1987)
                                                                                                                                                                                                                     MEDLINE; 94004464.

Eriksson A.E., Cousens L.S., Matthews B.W.;

"Refinement of the structure of human basic fibroblast growth factor at 1.6-A resolution and analysis of presumed heparin binding sites selenate substitution.";

Protein Sci. 2:1274-1284(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE; 92121151.
Ago H., Kitagawa Y., Fujishima A., Matsuura Y., Katsube Y.;
"Crystal structure of basic fibroblast growth factor at 1.6-A
                                                                                        X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS).
MEDLINE; 91193367.
ELIKSSON A.E., COUSENS L.S., Weaver L.H., Matthews B.W.;
"Three-dimensional structure of human basic fibroblast growth
                                                                                                                                                                        Proc. Natl. Acad. Sci. U.S.A. 88:3441-3445(1991)
                                                                                                                                                                                                                                                                                                                                 X-RAY CRYSTALLOGRAPHY (1.8 ANGSTROMS).
MEDLINE; 91195368.
                                                                                                                                                                                                       X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS)
                                                                                                                                                                                                                                                                                                                                                                                                                                                  X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; M17599; AAA52534.1; ALT_INIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  resolution.";
J. Biochem. 110:360-363(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; X04431; CAA28027.1;
EMBL; X04432; CAA28028.1;
EMBL; X04433; CAA28029.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             factors.";
Science 251:90-93(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRUCTURE BY NMR
```

.; 6

GOKAILFLPMSAKS 155 GOKAILFLPLPVSS 199

142

g

186

M27968; AAA52448.1; -. JO4513; AAA52533.1; ALT\_INIT.

EMBL; EMBL;

```
2
                                             FGF2 OR FGF-2
                                                                                                                                                                                     TISSUE-BRAIN
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ξ,
                                                                                                                                                       66 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       83 AMKEDGRLLASKCVTEECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGSKTGP 140
                                                                                                                                                                                                                                                             -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   23 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYL 82
                                                  01-APR-1990 (Rel. 14, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
GROWTH FACTOR) (BFGF) (PROSTATROPIN).
                                                                                                          Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7
                                                                                                                                                                                                                                                                                                                                                                                                                                                HEPARIN-BINDING GROWTH FACTOR HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
689F677416274388 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                  PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFGF.
PROSITE; PS00247; HBGFFGF. 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 508; DB 1; Length 154 Pred. No. 1.29e-96; 23; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ¥
                            154 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                            PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    118 E
17153 MW;
                                              Created)
                                                                                                                                                                                                                                                                                                                                                       EMBL; M30644; AAA37621.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Match 35.3%;
Local Similarity 54.5%;
les 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STANDARD;
                            STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       154
30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            141 GOKAILFLPMSAKS 154
                                            (Rel. 14, 1) (Rel. 14, 1) (Rel. 33, 1)
                                                                                                                                                                                                                                                                                                                                                               PIR; C37360; C37360.
HSSP; P09038; 1BFF.
MGD; MGI:95516; FGF2.
                                                                                                   Mus musculus (Mouse).
                                                                                                                                                                                                                                 SUBUNIT: MONOMER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   115 1
154 AA;
                                                                                                                                                                                                                                                                                                                                                                                            PF00167; FGF;
                         FGF2_MOUSE STA
P15655;
01-APR-1990 (Rel.
                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                90201563
                                                                                           FGF2 OR FGF-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LT 12
FGF2_RAT
P13109;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                  CHAIN
BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                          PROPEP
                  11
                                                                                                                                                                                                                                                                                                                                                                                            PFAM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
                  RESULT
                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce.or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BI-HUSSEIN A.E.D., Paterson J.A., Myal Y., Shiu R.P.C.;
BI-HUSSEIN A.E.D., Paterson J.A., Myal Y., Shiu R.P.C.;
PCR detection of the rat brain basic fibroblast growth factor (bFGF)
mRNA containing a unique as 'untranslated region.";
Biochim. Biophys. Acta 11314-316 (1992).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIGGENIC AGENTS
IN VIVO AND ARE DOTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -i- SUBUNIT: MONOMER.
-i- TISSUE SPECIFICITY: FOUND IN ALL THE TISSUES EXAMINED.
-i- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cooksey K., Baird A., Ling N.; "Complementary DNA cloning and sequencing of rat ovarian basic fibroblast growth factor and tissue distribution study of its mRNA."; Biochem. Biophys. Res. Commun. 157:256-263(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -! - SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                        Craniata; Vertebrata; Euteleostomi;
Sciurognathi; Muridae; Murinae; Rattus
01-JAN-1990 (Rel. 13, Created)
01-JAN-1990 (Rel. 13, Last sequence update)
15-JUL-1998 (Rel. 36, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE; 88262516.
Kurokawa T., Seno M., Igarashi K.;
"Nucleotide sequence of rat basic fibroblast growth factor CDNA.";
Nucleic Acids Res. 16:5201-5201(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pasumarth K.B.S., Jin Y., Cattini P.A.; "Cloning of the rat fibroblast growth factor-2 promoter region and its response to mitogenic stimuli in glioma C6 cells.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PROSITE; PS00247; HEGE_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Shimasaki S., Emoto N., Koba A., Mercado M., Shibata F.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAIN-SPRAGUE-DAWLEY; TISSUE-TESTIS; MEDLINE; 97200905.
                                                                                                                                                      GROWTH FACTOR) (BFGF) (PROSTATROPIN).
                                                                                                                                                                                                                                                                                                                                                                                                                          STRAIN-SPRAGUE-DAWLEY; TISSUE-OVARY; MEDLINE; 89061721.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE OF 35-154 FROM N.A.
STRAIN-SPRAGUE-DAWLEY; TISSUE-BRAIN;
MEDLINE; 92329546.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Neurochem. 68:898-908(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; M22427; AAA41210.1; -. EMBL; X07285; CAA30265.1; -. EMBL; U78079; AAC53225.1; -. EMBL; X61697; CAA43863.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE OF 1-28 FROM N.A.
                                                                                                                                                                                                                                       Rattus norvegicus (Rat).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PIR; S00876; S00876.
PIR; A31674; A31674.
HSSP; P09038; 1BFF.
PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
```

HEPARIN-BINDING GROWTH FACTOR 2.

ij

Gaps

;

155 AA

RESULT

FT

g

ద ò

ô a

```
66 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 125
                                                                                                           85 AMKEDGRILLALKYVTEECFFFERLESNNYNTYRSRKYS--NWYVALKRTGQYKLGSKTGP 142
                                       25 GHFKDPKRLYCKNGGFFLRIHPDGRVDGIREKSDPNIKLQLQAEERGVVSIKGVCANRYL 84
                                                                                                                                                                                                                                                                                                                                       01-JAN-1990 (Ref. 13, Last sequence update)
01-NOV-1997 (Rel. 35, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
GROWTH FACTOR) (BFGF).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE; 89058621.
Kimelman D., Abraham J., Haaparanta T., Palisi T., Kirschner M.;
Kimelman D., Abraham J., Haaparanta T., Palisi T., Kirschner M.;
"The presence of fibroblast growth factor in the frog egg: its role as a natural mesoderm inducer.";
Science 242:1053-1056(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                   Xenopus laevis (African clawed frog).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
   22; Mismatches 37; Indels
                                                                                                                                                                                                                                                                                                                          01-OCT-1989 (Rel. 12, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ψ.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; M18067; AAA49726.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE OF 95-155 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  34.3%;
50.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                111
     Conservative
                                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                                                                                                                   186 GOKAILFLPLPVSS 199
                                                                                                                                                                                  143 GOKAILFLPMSAKS 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
155
31
119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PIR; A29618; A29618.
PIR; A40117; A40117.
HSSP; P09038; IBFF.
PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Xenopodinae; Xenopus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       embryo.";
cell 51:869-877(1987)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         116 1
111' 1
155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                     FGF2 OR FGF-2
   73;
                                                                                                                                                                                                                                                                       LT 14
FGF2_XENLA
P12226;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PROPEP
     Matches
                                                                                                                                                                                                                                                                     g
                                                                                                           g
                                                                                                                                                                                g
                                                                        ò
                                                                                                                                             à
                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@ilensib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGENTS
IN
                                                                                                                                                               66 ANYKRPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 125
                                                                                                                                                                                                                 AMKEDGRLLASKCVTEECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGSKTGP 140
                                                                                                                                                                                                                                    SCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                            01-FEB-1996 (Rel. 33, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
01-NOV-1997 (Rel. 35, Last annotation update)
HEPAIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTATROPIN).
                                                                                                                                           GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYL 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE; 94296558.

MEDLINE; 94296558.

Kusewitt D.F., Sabourin C.L.K., Sherburn T.E., Ley R.D.;

"Characterization of cDNa encoding basic fibroblast growth factor of the marsupial Monodelphis domestica.";

DNA Cell Biol. 13:549-554(1994).

-!- FUNCTION: THE HEPARIN BINDING GROWTH FACTORS ARE ANGIOGENIC AGINTRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Monodelphis domestica (Short-tailed grey opossum).
Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Metatheria; Didelphimorphia; Didelphidae; Monodelphis.
                                                                                                         ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BY SIMILARITY.
HEPARIN-BINDING GROWTH FACTOR
HEPARIN (POTENTIAL).
7E655FCC49BF1209 CRC64;
                                                                        Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 156;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIMTS; PF00167; FGF; 1.
PRIMTS; PR00262; ILIHBGF.
PRIMTS; PR00263; ILIHBGF-GF; 1.
PR0511F; PR00247; HBGF-FGF, 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                    Score 508; DB 1; Length 154
Pred. No. 1.29e-96;
23; Mismatches 36; Indels
                    EPARIN (POTENTIAL).
1A0F14FF423D8403 CRC64;
   HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 498; DB 1; I
Pred. No. 4.58e-94;
                                                                                                                                                                                                                                                                                                                                                                                                156 AA
                    HEPARIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; 215154; CAA78854.1; ALT_INIT.
HSSP; P09038; 1BFF.
                                                                                                                                                                                                                                                                                                                                                                                                PRT;
26 30 H
115 118 H
154 AA; 17139 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17303 MW;
                                                                    Query Match
Best Local Similarity 54.5%;
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   34.68;
54.58;
                                                                                                                                                                                                                                                                                                                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                                       141 GOKAILFLPMSAKS 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -!- SUBUNIT: MONOMER
-!- MISCELLANEOUS: TI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         28
117
156 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                         FGF2_MONDO
P48798;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LISSUE-EYE;
                                   SEQUENCE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
 BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BINDING
                                                                                                                                                                                                                                                                                                                                                                               13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PROPEP
                                                                                                                                           23
                                                                                                                                                                                                                                                                                                                        186
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ä
                                                                                                                                                                                           -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
MEDLINE; 88052890.
Kimelman D., Kirschner M.;
"Synergistic induction of mesoderm by FGF and TGF-beta and the identification of an mRNA coding for FGF in the early Xenopus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ~
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HEPARIN-BINDING GROWTH FACTOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 1; Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
MISSING (IN REF. 2).
036735C8063142FD CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 493; DB 1; I
Pred. No. 8.58e-93;
27; Mismatches 43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best_Local Similarity 50.7%;
Matches 74; Conservative
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@lsb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGENTS
IN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          66 ANYKRPKLLYCSNGGHFLRILDPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -i- SUBUNIT: MONOMER.
-i- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  75 AMKEDGRLLASKCVIDECFFFERLESNNYNIYRSRKYS--SWYVALKRIGQYKLGSKIGP 132
                         72 VSIKGITANRYLAMKEDGRLTSLRCITDECFFFERLEANNYNTYRSRKYS--SWYVALKR 129
                                                                                                                                                       -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL 74
ESEDGGNTPFSPGSFKDPKRLYCKNGGFFLRINSDGRVDGSRDKSDSHIKLQLQAVERGV 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-FEB-1996 (Rel. 33, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTATROPIN) (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Oryctolagus cuniculus (Rabbit).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        32.4%; Score 466; DB 1; Length 137;
larity 54.4%; Pred. No. 6.09e-86;
Conservative 21; Mismatches 34; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PFAM; PF00167; FGF; 1.
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
BINDING 107 110 HEPARIN (POTEWILAL).
BINDING 107 110 HEPARIN (POTEWILAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  137 AA; 15418 MW; 0D9EE457B88E8C51 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                       137 AA
                                                                                                                                                                                                                                                  130 TGQYKNGSSTGPGQKAILFLPMSAKS 155
                                                                                                                                                                                                                                                                                  EMBL; L12034; AAA31248.1; -. HSSP; P09038; 1BFF.
                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         133 GQKAI 137
                                                                                                                                                                                                                                                                                                                                                                                                                                    FGF2_RABIT
P48799;
01-FEB-1996 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NON_TER
SEQUENCE
12
                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DR DR DR DR SO STATE OF STATE 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                    a
                                                                                                                                                                                     δ
                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                          SAPP
셤
                                                          ò
```

```
||||||
Qy 186 GQKAI 190
```

Search completed: Tue Aug 29 15:53:34 2000 Job time: 23 secs.

*************************************	ê	*************************************
**********************************		************************

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

MPsrch\_pp protein - protein database search, using Smith-Waterman algorithm

Tue Aug 29 15:53:51 2000; MasPar time 18.28 Seconds 758.532 Million cell updates/sec Jular output not generated. :uo

>US-09-121-017B-19
(1-200)-from-US09721017B.pep
1438
1 MAPARLFALLLFFVGGVAES......PRTHYGQKALFLPLPVSSD 200 Description: Perfect Score: Sequence: Title:

Scoring table:

PAM 150 Gap 11

Searched:

Minimum Match 0% Listing first 45 summaries Post-processing:

225878 seqs, 69334122 residues

Database:

Mean 43.886; Variance 66.655; scale 0.658 Statistics:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

		æ					
Sult No.	Score	Query Match	Query Match Length DB	DB	ΩI	Description	Pred. No.
1	511	35.5	130	9	077767	BASIC FIBROBLAST GROWT	2.70e-100
7	509	35.4	196	4	P78443		9.03e-100
m	382	26.6	101	13	P79706	BASIC FGF (FRAGMENT).	6.40e-67
4	346	24.1	146	13	007659	FIBROBLAST GROWTH FACT	8.07e-58
S	313	21.8		Ξ	060487	BASIC FIBROBLAST GROWT	1.36e-49
9	301	20.9		9	P79150	KERATINOCYTE GROWTH FA	1.25e-46
7	298	20.7	212	13	042407	FIBROBLAST GROWTH FACT	6.80e-46
œ	274	19.1	252	11	960680	FHF-4B.	4.83e-40
6	266	18.5	9	4	016588	ACIDIC FIBROBLAST GROW	4.12e-38
10	265	18.4	59	4	016089	ACIDIC FIBROBLAST GROW	7.18e-38
11	264	18.4	70	11	054837	FIBROBLAST GROWTH FACT	1.25e-37
12	261	18.2	198	7	035988	RYUDOCAN CORE PROTEIN	6.56e-37
13	260	18.1		13	Q9YH31	PUTATIVE FIBROBLAST GR	1.14e-36
14	259	18.0		13	Q9YGD8	FIBROBLAST GROWTH FACT	1.98e-36
15	257	17.9		13	Q9W6A1	FIBROBLAST GROWTH FACT	5.95e-36
16	251	17.5	127	❖	099517	FIBROBLAST GROWTH FACT	1.61e-34
17	248	17.2	192	4	095830	FIBROBLAST GROWTH FACT	8.31e-34
18	248	17.2	245	13	Q9W6A2	FIBROBLAST GROWTH FACT	8.31e-34
19	236	16.4	200	13	P79925	FIBROBLAST GROWTH FACT	5.68e-31
20	226	15.7	425	വ	076831	LET-756 PROTEIN.	1.24e-28

2.12e-28 6.17e-28	1.51e-26	1.26e-25	2.96e-24	3.25e-22	1.93e-22	9.36e-20	7.17e-19	1.98e-18	1.98e-18	2.85e-13	3.72e-05	1.98e-04	1.53e-03	1.12e-02	1.65e-02	5.25e-02	1.12e-01	1.12e-01	3.40e-01	3.40e-01	4.90e-01
KERATINOCYTE GROWTH FA FIBROBLAST GROWTH FACT FIBROBLAST CROWTH FACT		GROWTH	FIBROBLAST GROWIN FACT R33683 2.	FGF-ACMNPV ORF32.	FIBROBLAST GROWTH FACT	FGF-19.	FIBROBLAST GROWTH FACT	BASIC FIBROBLAST GROWT	BASIC FIBROBLAST GROWT	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	CONSERVED PROTEIN.	HYPOTHETICAL 27.5 KD P	211AA LONG HYPOTHETICA	ORF8.	MITOCHONDRION ASPERGIL	POLYPROTEIN.	DEVELOPMENTAL REGULATO	FH1/FH2 PROTEIN HOMOLO	NADH-UBIQUINONE OXIDOR
077561 090696	P91672	014915	042278	092401	Q9YMH2	095750	097573	016443	000527	035340	062682	P79685	027154	073554	Q9YEE7	087969	037406	011979	092000	P78621	0922Q3
13	3.0	4	τ 4	14	14	4	9	4	4	1	ø	13	-	14	Н	~	œ	14	ო	m	æ
204	770	244	129	182	285	216	73	114	114	78	85	98	822	243	211	346	352	3443	980	1790	330
15.6	12.1	14.8	14.5	13.8	13.8	13.0	12.7	12.6	12.6	10.9	8.1	7.8	7.4	7.1	7.0	8.9	6.7	6.7	6.5	6.5	6.4
225	217	213	203	198	199	187	183	181	181	157	116	112	107	102	101	86	96	96	93	93	95
22	24.	22	27	28	29	30	31	32	33	34	32	36	37	38	39	40	41	42	43	44	45

# ALIGNMENTS

Ξ

196 A.A.

PRT;

PRELIMINARY;

RESULT 2 ID P78443

ä

Gaps

; ;

2

```
SEQUENCE OF 52-85 FROM N.A. MEDILINE; 90382534. MITEANI E., GRUENBAUM Y., SHOHAT H., ZIV T.; "Fibroblast growth factor during mesoderm induction in the early chick
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Archosauria; Aves;
Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.
                                                                                                                                                                                                           45 ERVSAMVKLQLQAEERGVVSIKGVSANRFLAMKEDGRLLALKCATEECFFFERLESNNYN 104
                                                                                                                                                                                   1 PKRLYCKNGGFFLRINSDGKVDGAREKSDSYIKLQLQAEERGVVSIKGVCANRYLAMKDD 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
MEDLINE; 93246053.
BORJA A.Z., ZELLER R., MEIJERS C.;
BORJA A.Z., ZELLER R., MEIJERS d.;
antisense mRNAs during chicken embryogenesis.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      060487;
01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
Cavia porcellus (Gilnea plg).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          24.1%; Score 346; DB 13; Length 146; 48.1%; Pred. No. 8.07e-58;
                                                                                                    DB 13; Length 101;
                                                                                                                                           18; Mismatches 28; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           105 TYRSRKYSD-'-WYVALKRTGQYKPGPKTGPGQKAILFLPMSAKS 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61 GRIMALKWITDECFFFERLESNNYNTYRSRKYSD--WYVALKR 101
                                                                                                                                                                                                                                                                                                                                                                                                                                   Created)
Last sequence update)
Last annotation update)
                                                                                                    Score 382; DB 13;
Pred. No. 6.40e-67;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRINTS; PR00262; IL1HBGF.
SEQUENCE 146 AA; 16182 MW; 44C5274B CRC32;
                                                              1CD93BB0 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                            146 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     115 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Development 109:387-393(1990).
EMBL, M95706; AAA4816.1; -
EMBL, X56804; CAA40139.1; -
HSSP; P09038; ZBFH.
PROSITE; PS00247; HBGF_FGF; 1.
                                                              11907 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Dev. Biol. 157:110-118(1993)
                                                                                                                                                                                                                                                                                                                                                                                                                                 01-NOV-1996 (TrEMBLrel. 01, 01-NOV-1996 (TrEMBLrel. 01, 01-NOV-1999 (TrEMBLrel. 12,
                                                                                                    26.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity 48.1%;
nes 50; Conservative
                                                                                                                         Local Similarity 53.4%;
tes 55; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FIBROBLAST GROWTH FACTOR.
                                                                                                                                                                                                                                                                                                                                                                                            PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gallus gallus (Chicken)
                                        101
PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PFAM; PF00167; FGF;
                                                              101 AA;
                                        101
                                        NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     embryo.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                    Query Match
                     NON_TER
                                                                                                                                                                                                                                                                                                                                                                         O07659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LT 5
Q60487
                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OSEPTE
    RFFS
                                                                                                                                                                                                                              δλ
                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              66 ANYKRPKLLYCSNGGHFLRILDPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 125 AMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYT--SWYVALKRTGQYKLGSKTGP 182
                                                                                                                                                                                                                                                                       .;
o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        65 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         expression of basic fibroblast growth factor transcripts in human granulosa and cumulus cells from in vitro fertilisation patients."; Blochem. Biophys. Res. Commun. 187:1227-1231(1992).

EMBL; J04513; AaA52532.1; -.

EMBL; 847380; AAD13853.1; -.

HSSP; P09038; 1BFF.
                                                                                                                                                                                                                        MEDLINE; 89184522.

PRATS H., KAGHAD M., PRATS A.C., KLAGSBRUN M., LELIAS J.M.,
LIADUZUN P., CHALON P., TAUBER J.P., AMALRIC F., SMITH J.A., CADUT I.
LIADUZUN P., CHALON P., TAUBER J.P., AMALRIC F., SMITH J.A., CADUT I.
"High molecular mass forms of basic fibroblast growth factor are initiated by alternative CUG codons.',
Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                      'Reverse transcription with nested polymerase chain reaction shows
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TISSUE=EMBRYO;
SUZUKI A.S., TABATA T., SAKAGUCHI K., TAKABATAKE T., TAKESHIMA K.,
KANEDA T.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             οĘ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "Serial expression of the genes in a mesodermalizing ectoderms early Cynops gastrula.";
Submitted (NOV-1996) to the EMBL/GenBank/DDBJ databases.
BERD: D89443: BAR13958.1; -.
HSRP: P09038; 2BFH.
PROSITE; PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Cynops pyrrhogaster (Japanese common newt).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Amphibia;
Batrachia; Caudata; Salamandroidea; Salamandridae; Cynops.
                                                                                                                                        Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Mammalia,
Eutheria, Primates, Catarrhini, Hominidae, Homo.
                                                                                                                                                                                                                                                                                                                                                                                                       WATSON R., ANTHONY F., PICKETT M., LAMBDEN P., MASSON G.M., THOMAS E.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 509; DB 4; Length 196
Pred. No. 9.03e-100;
23; Mismatches 36; Indels
                 01-MAY-1997 (TrEMBLrel. 03, Created)
01-MAY-1997 (TrEMBLrel. 03, Last sequence update)
01-MOV-1999 (TrEMBLrel. 12, Last annotation update)
21 KD BASIC FIBROBLAST GROWTH FACTOR (BFGF).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-MAY-1997 (TrEMBLrel. 03, Last sequence update) 01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PPAM; PF00167; FGF; 1.
PRINTS; PR00262; ILLHEGF.
PRINTS; PR00253; HGGFFGF.
SEQUENCE 196 AA; 21203 MW; 49B75E39 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   101 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-MAY-1997 (TrEMBLrel. 03, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PROSITE; PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE OF 81-168 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 35.4%;
Best Local Similarity 54.5%;
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           183 GQKAILFLPMSAKS 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BASIC FGF (FRAGMENT).
Cynops pyrrhogaster (3
                                                                                                                         Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PFAM; PF00167; FGF;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE; 93038590.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2T 3
P79706
P79706;
```

8

ద

ò

ŏ

5

Indels

SY TRANSPERSOR BY SET B

g

ò

```
Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Cranlata; Vertebrata; Archosauria; Aves;
Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.
                                                                                                                                                                    OHUCHI H., NAKAGAWA T., YAMAMOTO A., ARAGA A., OHTA T., ISHIMARU Y., YOSHIOKA H., KUTANA T., NOHNO T., YAMASAKI M., ITOH N., NOJI S.; "The mesenchymal factor, FGF10, initiates and maintains the outgrowth of the chick limb bud through interaction with FGF8, an apical ectodermal factor."; Development 124:2235-2244(1997).

EMBL: D86333; BAAZ4945.1; -. HSSP; P03568; IBAR.

PRAP: PF00167; FGF; I.

PRINTS; PR00163; HBGFFGF.

SEQUENCE 212 AA; 23631 MW; C8AB1883 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      137 AMNKKGKVYGSKEFNSDCKLKERIEENGYNTYASLNWKHNGRQMFVALNGRGATKRGQKT 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               80 LYCRQG-YYLQMHPDGALDGTKDDSTNSTLFNLIPVGLRVVAIQGVKTGLYIAMNGEGYL 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                81 VR-KR-KL-Y-SYNKYFLKIEKNGKVSGTKKENCPFSILEITSVEIGVVAVKSIKSNYYL 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE; 98267141.
YAMAMOTO S., MIKAMI T., OHBAYASHI N., OHTA M., ITOH N.;
"Structure and expression of a novel isoform of mouse FGF homologous factor (FHF)-4.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          22 LLLFLVSSVPVTCHDLGQDMLSPEATNSSSSSSSFPSSFSSPSSAGRHVRSYN-HLQGD 80
                                                                                                                                                                                                                                                                                                                                                                                                       Score 298; DB 13; Length 212;
Pred. No. 6.80e-46;
47; Mismatches 76; Indels 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Rattus norvegicus (Rat), and Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammali
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 274; DB 11; Length 25
Pred. No. 4.83e-40;
26; Mismatches 49; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-NOV-1998 (TrEMBLrel. 08, Created)
01-NOV-1998 (TrEMBLrel. 08, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
01-JUN-1998 (TrEMBLrel. 06, Last sequence update) 01-NOV-1999 (TrEMBLrel. 12, Last annotation update) FIBROBLAST GROWTH FACTOR 10.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Blochim. Blophys. Acta 1398:38-41(1998).

EMBL; AB008908; BAA31544.1; -.

EMBL; AB008907; BAA31543.1; -.

HSSP; A93968; 1BAR.

PFAM; PF00167; FGF; 1.

SEQUENCE 252 AA; 28364 MW; 1DFD5B4B CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    252 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                                                                                                                                                                                                                                                       h 20.7%;
Similarity 32.1%;
63; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ouery Match
Best Local Similarity 37.5%;
Matches 48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HYGOKAILFLPLPVSS 199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     197 RRKNTSAHFLPMVVMS 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TISSUE-BRAIN,
                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LT 8
089096
089096;
                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ä,
                                                                                                                                                                                                                                                                                          ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE; 96226403.

CANATAN H., CHANG W.Y., SUGIMOTO Y., SHIDAIFAT F., KULP S.K.,

BRUGGGEMEIER N.W. LIN Y.C.;

"Keratinocyte growth factor (KGF/FGF-7) has a paracrine role in canine

prostate: molecular cloning of mRNA encoding canine KGF.";

DNA Cell B40. 15:247-254 (1996).

EMBL: U80800; AAB38972.1; --

HSSP; P05230; 2AFG.
                                                                                                                                                                                                                                                                                                                                                   69 LFCRTQ-WYLRIDKRGKVKGTQEMKNSYNIMEIRTVAVGIVAIKGVESEYYLAMNKEGKL 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             128 YAKKECNEDCNFKELILENHYNTYASAKWTHSGGEMFVALNQKGVPVRGKKTKKEQKTAH 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 GFFLRIHPDGRVDGVREKTDPHIKHNFKPKA-EELCYQGSLSNRYLAMKEDGRLLASKCV 59
                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                          ٠.
ش
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Carnivora; Fissipedia; Canidae; Canis.
                                                                                                                                                                                                                                                  Length 115;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 194;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               28; Mismatches 47; Indels
                                                                                                                                                                                                                                                                                        22; Mismatches 31; Indels
                                                                     RICCIARDELLI C.;
Submitted (JAN-1996) to the EMBL/GenBank/DDBJ databases.
EMBL; L75974; AA485394.1;
HSSP; P09038, 2BFH.
   Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-MAY-1997 (TrEMBLrel. 03, Created)
01-MAY-1997 (TrEMBLrel. 03, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
KERATINOCYTE GROWTH FACTOR.
                                                                                                                                                                                                                                                                                                                                                                                                                               60 TDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLG 98
                                                                                                                                                                                                                                                  Score 313; DB 11;
Pred. No. 1.36e-49;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 301; DB 6;
Pred. No. 1.25e-46;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PROSITE; PS00247; HBGF_FGF; 1.
PFAM; PF00167; FGF; 1.
PRINTS; PR00262: IL1HBGF.
SEQUENCE 194 AA; 22476 MW; 2B71A8ED CRC32;
                                                                                                                                                                                                            SEQUENCE 115 AA; 13495 MW; 4B12914A CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           212 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         042407;
01-JAN-1998 (TrEMBLrel. 05, Created)
                                                                                                                                                   PROSITE; PS00247; HBGF_FGF; 1.
PFAM; PF00167; FGF; 1.
NON_TER 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20.9%;
38.6%;
                                                                                                                                                                                                                                                    21.8%;
                                                                                                                                                                                                                                                                        44.68;
                                                                                                                                                                                                                                                                    Best Local Similarity 44.6%;
Matches 45; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 20.9%;
Best Local Similarity 38.6%;
Matches 49; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Canis familiaris (Dog)
                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              192 FLPLPVS 198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        188 FLPMAIT 194
                                                         TISSUE-PROSTATE;
                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 6
ID P79150
AC P79150;
```

Indels 10; Gaps 10;

ä

ŝ

LT 7 042407

g

ò

g

ö

ò

RESULT ID 04 AC 04 DT 01

Length 252;

ä

Gaps

3;

Length 59;

ŏ g ò a å

```
MEDLINE; 97420681.

A TSUZUKI S., KOJIMA T., KATSUMI A., YAMAZAKI T., SUGIURA I., SAITO H.;

TSUZUKI S., KOJIMA T., KATSUMI A., YAMAZAKI T., SUGIURA I., SAITO H.;

TMOJECULAR C.ODIMA, Genomic Organization, promoter activity, and

TISSUE-Specific expression of the mouse ryudocan gene.";

J. Biochem. 122:17-24(1997).

J. Biochem. 122:17-24(1997).

SULFATE AND CHONDROITIN SULFATE AND THAT BEARS BOTH HEPARAN

SULFATE AND CHONDROITIN SULFATE AND THAT LINKS THE CYTOSKELETON TO

THE INTERSITIAL MATRIX. BINDS BASIC FIBROBLAST GROWTH FACTOR.

REMBL; D89572; BAA22135-1; -.

REMBL; D89572; BAA22135-1; -.

REMBL; D89572; SAA22135-1; -.

REMBL; D89572; BAA22136-1; -.

REMBL; D89572; BAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                         1; Indels
                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
STRAIN-C3H/HEN; TISSUE-LIVER;
STRAIN-C3H/HEN; TISSUE-LIVER;
SUBMITTED (JUL-1997) to the EMBL/GenBank/DDBJ databases.
EMBL; AF012926; AAB94020.1;
EMSP; PF05230; DAXM.
PRSP; PF05167; FGF; 1.
NON_TER
                                                                                                                                                                                                                                                13 TEKFNLP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQH 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-JAN-1998 (TrEMBLrel. 05, Created)
01-JAN-1998 (TrEMBLrel. 05, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
RYUDOCAN CORE PROTEIN PRECURSOR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 264; DB 11; I
Pred. No. 1.25e-37;
1; Mismatches 0;
                                                                                                                             Score 265; DB 4; I
Pred. No. 7.18e-38;
5; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POTENTIAL.
FC67B0E5 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              70 AA; 7677 MW; 15A1BE5E CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    35 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQH 70
                                                                                1C932B1D CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       198 AA
                                                                                                                                                                                                                                                                                                                                                                                                                   ΑĄ
                                                                                                                                                                                                                                                                                                                                                                                                                                    054837;
01-JUN-1998 (TrEMBLrel. 06, Created)
01-JUN-1998 (TrEMBLrel. 06, Last sequei
01-JUNY-1999 (TrEMBLrel. 12, Last annoter
FIBROBLAST GROWTH FACTOR-1 (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  198 AA; 21482 MW;
                                                   NON_TER 59 59
SEQUENCE 59 AA; 6595 MW;
                                                                                                                                18.4%;
80.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity 97.2%;
Matches 35; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
STRAIN-C3H/AN, AND 129SVJ;
                                                                                                                                                       Best Local Similarity 80.9%;
Matches 38; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                   PRELIMINARY;
PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LT 12
035988
035988;
                                                                                                                                                                                                                                                                                                                                                                                      JT 11
054837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       엄
                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ZHAO X.M., YEOH T.K., HIEBERT M., FRIST W.H., MILLER G.G.; "The expression of acidic fibroblast growth factor (heparin-binding growth factor-1) and cytokine genes in human cardiac allografts and T
                                                                                                         74 LYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYLAMDTDGLL 133
                                                                             139 YPSELFTPECKFKESVFENYYVIYSSMLYRQQESGRAWFLGLNKEGQVMKGNRVKKTKPA 198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE; 94069734.
ZHAO X.M., YEOH T.K., HIEBERT M., FRIST W.H., MILLER G.G.;
"The expression of acidic fibroblast growth factor (heparin-binding growth factor-1) and cytokine genes in human cardiac allografts and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AEDLINE; 92202857.

LI Y.L., KHA H., GOLDEN J.A., MIGCHIELSEN A.A.J., GOETZL E.J.,
LI Y.L., KHA H., GOLDEN J.A., MIGCHIELSEN A.A.J., GOETZL E.J.,
LI Y.L., KHA H., GOLDEN J.A., MIGCHIELSEN A.A.J., GOETZL E.J.,
LI Y.L., KHA H., GOLDEN J.A., MIGCHIELSEN A.A.J., GOETZL E.J.,
"An acidic fibroblast growth factor protein generated by alternate splicing acts like an antagonist.";
J. Exp. Med. 175:1073-1080(1992).
EMBL; SG5729; AAA5662.1; -.
EMBL; SG5779; CAA46662.1; -.
HSSP; PO5230; ZAXM.
PFAM: PFO0167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last sequence update)
ACIDIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
HOMO sapiens (Human).
Eukaryota, Metazoa; Chordata; Craniata; Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S SDDFELSGSGDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQ 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              13 TEKFNLP-PG--NYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHTD 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 60;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 266; DB 4; Length 60;
Pred. No. 4.12e-38;
6; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                          Q16588 PRELIMINARY; PRT; 60 AA. Q16588; Q16588; Q10-NOV-1996 (TrEMBLrel. 01, Created) 01-NOV-1999 (TrEMBLrel. 01, Last sequence update) 01-NOV-1999 (TrEMBLrel. 12, Last annotation update) ACIDIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              59 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Transplantation 56:1177-1182(1993).
EMBL, S67294; AAB29059.1; -.
HSSP; P05230; 2AXM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ransplantation 56:1177-1182(1993)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18.5%;
ilarity 77.6%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
Matches 38; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE; 94069734.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                       199 AHFLPKPL 206
                                                                                                                                                                                                                                          190 ILFLPLPV 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NON_TER
SEQUENCE
```

cells.";

RESULT

BABBAG

LT 10 Q16089 Q16089;

RESULT

cells."

ö

ö

Indels

Length 70;

23375 MW; 818267C3 CRC32;

206 AA;

```
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .T 15
Q9W6A1
Q9W6A1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Search comp
Job time :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COORDINATE OF CO
       S
                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                       유
                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                            ;
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ë
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "Identification of a fibroblast growth factor 6 (FGF6) gene in a non-mammalian vertebrate: continuous expression of FGF6 accompanies muscle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      71 KRLRRLYCNVGIGFHLQVLPDGRIHGMHSES-RYSLLEISPVERGVVCMFGVQSGLFLAM 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            130 NSKGRLFGSKYFSDECKFKEMLLPNNYNAYESWRYPGM--YIALSKNGRAKKGNKVSPTM 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 260; DB 13; Length 196;
Pred. No. 1.14e-36;
31; Mismatches 48; Indels 4; Gaps
                                                                                                                                                 1 MAPACLLAPLLLLLGGFPLVPGESIRETEVIDPQDLLEGRYFSGALPDDEDA-G-G--S 56
                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Oncorhynchus mykiss (Rainbow trout) (Salmo gairdneri).
Eukaryota: Metazoa: Chordata: Craniata; Vertebrata; Actinopterygii;
Neopterygii: Teleostei; Euteleostei; Protacanthopterygii;
Salmoniformes; Salmonidae; Oncorhynchus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PUTATIVE FIBROBLAST GROWTH FRCTOR-4.
NOtophthalmus viridescens;
Notophthalmus viridescens;
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Amphibia;
Batrachia; Caudata; Salamandroidea; Salamandridae; Notophthalmus.
                                                                            6
       Length 198;
                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        "Putative Newt Fibroblast Growth Factor-4.";
Submitted (OCT-1996) to the EMBL/GenBank/DDBJ databases.
EMBL: 076998, AAC98812.1; ...
HSSP: P09031: 1BFF.
PROSITE; PS00247; HBGE_FGF; 1.
SEQUENCE 196 AA; 22033 MW; 455E08A3 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-WAY-1999 (TrEMBLrel. 10, Created)
01-WAY-1999 (TrEMBLrel. 10, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Last sequence update)
Score 261; DB 11;
Pred. No. 6.56e-37;
6; Mismatches 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  206 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT; 196 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-MAY-1999 (TrEMBLrel. 10, Created)
01-MAY-1999 (TrEMBLrel. 10, Last sequence u
01-NOV-1999 (TrEMBLrel. 12, Last annotation
FIBROBLAST GROWTH FACTOR 6-RELAIED PROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Biochim. Biophys. Acta 1443:305-314(1998).
EMBL; Y16850; CAA76422.1;
HSSP; P09038; 1BFF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PROSITE; PS00247; HBGF_FGF; 1.
   18.2%;
75.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity 34.6%;
Matches 44; Conservative
                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      fiber hyperplasia.";
Biochim. Biophys. Act
                          Best Local Similarity
Matches 53; Conserv
                                                                                                                                                                                                                                                                                                                                    57 DDFELSGSGD 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A. MEDLINE; 99096461.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    188 TVTHFLP 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             188 KAILFLP 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESCAN P.Y
       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LT 14
Q9YGD8
Q9YGD8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LT 13
09YH31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      09YH31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SULT
                                                                                                                                                 පි
                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SON R R R R R OC S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      움
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DE RELEASE OF SERVICES OF THE 
                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                     ô
```

```
;
6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FUBLIS
Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Archosauria; Aves;
Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         77 LF-SQQEYFLQMHPDGTIDGTKDENSDYTLFNLIPVGLRVVAIQGVKAGLYVAMNAEGYL 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       136 YSSDVFTPECKFKESVFENYYVIYSSTLYRQQESGRAWFLGLNKEGQIMKGNRVKKTKPS 195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       81 KRVRRLYCNAGIGFHLQVLPDGRINGVHN-ENQYSLIEISTVERGVVSLYGVRSELFVAM 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               69 KKPKLLYCSNGGHF-LRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYLAM 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      140 NSRGRLYGTTVFHDECKFRESMLPNNYNAYESSVY:--RGSYIALNKHGRLKRGKKATTAM 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    :: | | | | | : : : | | | | : : : | | | | : : : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | :
                                                                                                                                                                                                                                                                                                                                     25 VLLGFIVGIVSSYPIPSRTNA-TLLEKRW--ETLFS-RSILGISGEKSDLNWESDYLLGI 80
                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
MEDLINE; 99065510.
MEDLINE; 99065510.
MEDLINE; 99065510.
"Expression of chicken fibroblast growth factor homologous factor (FHF)-1 and of differentially spliced isoforms of FHF-2 during development and involvement of FHF-2 in chicken limb development."; Development 126:409-421(1999).
EMBL: AF108754; AAD21575.1; SEQUENCE 243 AA: 27455 MW; A9E6E8CD CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ij
                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 243;
                                                        Length 206;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 257; DB 13; Length 243
Pred. No. 5.95e-36;
31; Mismatches 48; Indels
                                                                                                                                                             48; Mismatches 78; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-NOV-1999 (TrEMBLrel. 12, Created)
01-NOV-1999 (TrEMBLrel. 12, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
FIBROBLAST GROWTH FACTOR 12 ISOFORM A.
                                                  Score 259; DB 13;
Pred. No. 1.98e-36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      243 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     completed: Tue Aug 29 15:55:23 2000
ne : 92 secs.
                                                  18.0%;
llarity 28.3%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 17.9%;
Best Local Similarity 34.4%;
Matches 44; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRELIMINARY;
Query Match
Best Local Similarity 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |:| |:
190 ILFLPLPV 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              196 SHFVPKPI 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         111
188 KAILFLP 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            198 TVTHFLP 204
```

\* 

	•	
*****	(TM)	******
****		****
*****	''	****
******		*******
******		********
在水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水		***************************************
******		******
***		****
*****		*****
******		*******
*		*

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

protein - protein database search, using Smith-Waterman algorithm Tue Aug 29 16:00:07 2000; MasPar time 8.79 Seconds 684.604 Million cell updates/sec MPsrch\_pp :u¢

>US-09-121-017B-21 (1-254) from USO9121017B.pep 1813 1 MAPARLFALLIFFVGGVAES.....PRTHYGQKAILFLPLPVSSD 254 bular output not generated.

Title: Description: Perfect Score: Sequence:

PAM 150 Gap 11 Scoring table:

188963 seqs, 23686106 residues Searched:

summaries Post-processing: Minimum Match 0% Listing first 45

Database:

a-geneseq36

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution. scale 0.231 Mean 32.851; Variance 142.196; Statistics:

### SUMMARIES

(		ď					
Result No.	Score	Query Match	Length	DB	10	Description	Pred. No.
	686	54.6	140	-	R25914	Human acidic fibroblas	1.80e-82
7	686	54.6	140	Н	R34497		1.80e-82
٣	989	54.6	140	П	P90068	Human acid fibroblast	1.80e-82
4	686	54.6	140	Н	R74647	Human recombinant aFGF	1.80e-82
S	686	•	140	Н	W04806	Human acidic fibroblas	1.80e-82
9	686	٠	140	Н	P70995	Sequence of human prot	1.80e-82
7	686	•	141	-	R10527	Human acidic fibroblas	1.80e-82
80	989	54.6	151	Н	R05789	Human aFGF encoded by	1.80e-82
σ	686	54.6	154	-	W92283	Human beta-endothelial	1.80e-82
10	686	54.6	154	Н	W04805	Human beta-endothelial	1.80e-82
-11	686	٠	154	Н	W06816	Human endothelial cell	1.80e-82
12	686	54.6	154	Н	W75414	Human beta-endothelial	1.80e-82
13	686	54.6	155	-4	P94037	Human acidic fibroblas	1.80e-82
14	989	54.6	155	-	R70812	FGF-1.	1.80e-82
15	989	54.6	155	-	P70482	Sequence encoded by co	1.80e-82
16	686	54.6	155	-	R80776	Fibroblast growth fact	1.80e-82
17	686	54.6	155	-	W53022	Fibroblast growth fact	1.80e-82
18	686	•	155	-	W75711	Fibroblast growth fact	1.80e-82
19	686		155	Н	W75415	Human endothelial cell	1.80e-82
50	686		155	-	W92291	. Human endothelial cell	1.80e-82
21	686		165	-	R05785	Human DECGF encoded by	1.80e-82
22	686	54.6	168	-	W06818	Human endothelial cell	1.80e-82
23	983	54.2	134	-	W75413	Human alpha-endothelia	6.91e-82

6.91e-82	6.91e-82	2.12e-81	8.15e-81	1.20e-79	1.20e-79	1.88e-79	1.88e-79	5.77e-79	1.66e-77	1.66e-77	2.45e-76	9.37e-76	2.87e-75	2.87e-75	5.27e-74						
Human alpha-endothelia	. Human alpha-endothelia	Fibroblast growth fact	Human endothelial cell	9 N-terminal residue d	aFGF mutein #2.	Recombinant human Alal	Human (Gly93) aFGF ana	Fibroblast growth fact	aFGF mutein #3.	12 N-terminal residue	Bovine fibroblast grow	Brain-derived acidic f	Bovine acidic Fibrobla	Bovine acidic fibrobla	Bovine recombinant aFG	Human acidic fibroblas	Human acidic fibroblas	Recombinant human muta	Recombinant bovine Ala	Bovine (Ala47,Gly93) a	Chimeric acid/basic fi
W92282	W04807	W71383	W06817	R11327	R25418	R25570	W00561	R65935	R25419	R11328	R65934	R13030	R34496	P90069	R74648	R25915	R05315	P90074	R25569	W00560	W01746
т	ч	ч	П	ч	Н	Н	7	ч	П		П	7	٦	-	-	-	Н	-	-	-	-
134	134	156	135	132	132	155	155	140	129	129	140	140	140	140	140	140	154	154	141	141	155
54.2	54.2	53.9	53.6	53.0.	53.0	52.8	52.8	52.6	51.7	51.7	51.1	51.1	51.1	51.1	51.1	51.1	51.1	50.7	50.5	50.5	49.8
983	983	978	972	096	960	928	928	953	938	938	926	926	926	926	926	926	926	920	915	915	902
24	25	56	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

## ALIGNMENTS

RESULT	LT 1
Ω	R25914 standard; peptide; 140 AA.
AC	R25914;
덥	26-JAN-1993 (first entry)
DE	Human acidic fibroblast growth factor.
ΚW	viral infections; viruses; FGF; herpes simplex virus; HSV-1; HSV-2;
KW	herpes varicella; herpes zoster; cytomegalovarus; influenza;
ΚW	human respiratory syncytial virus; Semliki Forest virus; HIV;
ΚW	human immunodeficiency virus; Moloney Sarcor: virus.
SO	Homo saptens.
ΡN	EP-497341-A.
D D	05-AUG-1992.
PF	30-JAN-1992; 101541.
PR	31-JAN-1991; GB-002145.
PR	09-JAN-1992; GB-000410.
PA	(FARM ) FARMITALIA ERBA SRL CARLO.
ΡΙ	Battistini C, Carminati P, Garofano L, Mazue G, Ungheri D;
DR	WPI; 92-260792/32.
PT	Synergistic antiviral composition contains B7GF and sulphated
PT	polysaccharide - for treating viral infections e.c. HSV-1 and -2,
PT	cytomegalovirus, HIV, influenza virus etc.
PS	Disclosure; Page 4; 20pp; English.
ပ္ပ	This sequence represents acidic fibroblast growth factor (aFGF).
ပ္ပ	aFGF, or its fragments may be used in a synergistic compsn. with an
ပ္ပ	antivirally active sulphated polysaccharide, and one or more
႘	excipients. The compsn. may be used to control herpes simplex virus
႘	(HSV-1 or -2) herpes varicella/zoster; cytomegalovirus; influenza;
មួ	human respiratory syncytial virus; Semliki Forest virus; HIV or
ខ	Moloney Sarcoma virus. The combination of aFGF with sulphated
႘	polysaccharide is found to have a greater antiviral activity than
ပ္ပ	expected for an additive effect. See also R25913-5.
SO	Sequence 140 AA;

Gaps ó Length 140; 1; Indels Score 989; DB 1; 1 Pred. No. 1.80e-82; 1; Mismatches 1; Query Match
Best Local Similarity 98.5%;
Matches 135; Conservative

ö

4 PPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQ 63 g ò QQ

ò g

124 HYGQKAILFLPLPVSSD 140

R34497

ò

RESULT
ID R3
AC R3
AC R6
DD D1 O6
DD D2
PD 30
PD 30
PPR 31
PR (11
PR (11
PR PT (11
PR PT (11
PT PT (11
PT (

```
64 YLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRT 123
                                                            YLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRT 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            118 PVANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQ 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            W04806;
29-DEC-1996 (first entry)
Human acidic fibroblast growth factor.
Endothelial cell growth factor; ECGF; blood vessel; regeneration;
heparin-Sepharose affinity chromatography; probe; oligonucleotide;
FGF; fibroblast growth factor; ss.
                                                                                       Claim 2. Column 30: 25pp; English.
Oligonucleotides were synthesized on the basis of the amino acid
sequence of bovine acidic fibroblast growth factor (aFGF) and
used to produce a synthetic gene (given in Q88233) incorporating.
codons preferred by E. coli or mammalian cells, unique cloning
sites, etc. This synthetic gene was mutagenized to obtain a gene
encoding a human recombinant aFGF (R74647) having activity
Sequence 140.AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4 PPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQ
                                                                                                                                                                                                                                                                                                                                                                                                         25-SEP-1995 (first entry).
Human recombinant aFGF.
Acidic fibroblast growth factor; aFGF; vulnerary; anglogenesis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                New recombinant human acidic fibroblast growth factor - used
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  promote cell growth, to promote wound healing, for vascular grafts and blood vessel repair
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 989; DB 1; Length 140; Pred. No. 1.80e-82;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Linemeyer DL,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         T
W04806 standard; Protein; 140 AA.
                                                                                                                                                                                                                                                                                                                                                   R74647 standard; protein; 140 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Kelly LJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity 98.5%;
Matches 135; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         124 HYGQKAILFLPLPVSSD 140
                                                                                                                                                                           124 HYGQKAILFLPLPVSSD 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HYGOKAILFLPLPVSSD 254
                                                                                                                                                                                                         HYGQKAILFLPLPVSSD 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12-SEP-1985; US-774359.
30-MAY-1986; US-864473.
11-JUL-1986; US-884460.
04-JUN-1987; US-054991.
04-MAY-1988; US-190293.
08-FEB-1991; US-654397.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               24-DEC-1984; 685923.
24-DEC-1984; US-685923.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25-SEP-1992; US-951365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (MERI ) MERCK & CO INC
Gimenez-Gallego G, Ke
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 95-138983/18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens
US5401832-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  08-FEB-1991
25-SEP-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          28-MAR-1995
                                                                                                                                                                                                                                                                                                                                                                              R74647;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mitogen
                                                         64
                                                                                                                  178
                                                                                                                                                                                                                                    238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                   DATO DE LA COLOR COLOR DE LA C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                     δŏ
                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              118 PVANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVXIKSTETGQ 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  64 YLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRT 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FGF mutein prepn. useful for therapy of burn or thrombosis - by transformation of lymphocyte-contained animal cell by vector contg. DNA encoding FGF mutein Disclosure; Page 3: 23pp; Japanese. The invention covers muteins of FGF (esp. bFGF) which contain at least one glycosylation site. The muteins can be used to treat burns and thrombosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQ 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4 PPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQ 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Disclosure; page 4; 36pp; English.
Amino acid sequence of human acidic fibroblast growth
factor (aFGF). The patent claims mutant forms which have
increased biological activity with(out) heparin, and promote
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   musculoskeletal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 989; DB 1; Length 140;
Pred. No. 1.80e-82;
1; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 989; DB 1; Length 140
Pred. No. 1.80e-82;
1; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mutant acidic fibroblast growth factor
- used for promoting repair of soft tissue, muscultissue or vascular or nerve tissue and plasminogen
                                                                                                                                                                        06-AUG-1993 (first entry)
Human acidic Fibroblast Growth Factor.
aFGF; mutein; glycoslation site; glycoprotein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Human acid fibroblast growth factor
Human acidic fibroblast growth factor; mutant.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ą.
                                                                                                                  R34497 standard; protein; 140 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Linemeyer DL;
                                                                                                                                                                                                                                                                                                                                             30-MAY-1991; 127435.
31-MAY-1990; JP-143388.
(TAKE ) TAKEDA CHEM IND LTD.
WPI; 93-139564/17.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              54.6%;
ilarity 98.5%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ch 54.6%;
1 Similarity 98.5%;
135; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 124 HYGQKAILFLPLPVSSD 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HYGOKAILFLPLPVSSD 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  T 3
P90068 standard; protein;
P90068;
238 HYGOKAILFLPLPVSSD 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1-NOV-1989 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14-OCT-1988; 202306.
22-OCT-1987; EP-244431.
(MERI) Merck and Co.
Thomas Jnr KA, Linemeyer
WPI; 89-167092/23.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 135; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           140 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 140 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               activator prodn.
                                                                                                                                                                                                                                                               Homo sapiens.
J05076356-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens
EP-319052-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   14-JUN-1989
                                                                                                                                                                                                                                                                                                                     30-MAR-1993
```

238

ŏ

셤

å

셤

õ

RESULT ID P9 AC P9 DT 1-

Sequence

ងងន

2

ö

ö

1; Indels

63 Gaps

Sequence

Matches

g

Ì

```
isolated, purified, biologically active bovine beta endothelial cell growth factor - useful to regenerate or treat damaged blood vessels Disclosure; Fig 8: 28pp: English.

Bovine beta-endothelial cell growth factor (beta-ECGF; W03999) having a mol.wt. of 20 kD can be purified at least 16300 fold from bovine brain using heparin-Sepharose affinity chromatography. ECGF is useful for, among other purposes, diagnostic applications and has potential in the treatment of damaged blood vessels or other endothelial cell-lined structures.

Human ECGF (737503) or fragments may be obtained using oligonucleotides (737504 to 737508 to 737509) whose design is based on the sequence of bovine alpha- and beta-ECGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence of human proteinaceous factor (PF1) with mitogenic activity. Cell growth promoter; mitogen; vascularisation; wound healing. Homo saplens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mitogenic polypeptide isolated from human brain tissue - useful for increasing vascular effect in eq wound healing, or generating endothelial cell linings for vascular prostheses, etc. (Claim 3: Page 1; 31pp; English.

The PF of the invention was obtd. from human brain tissue. It has a moi. wt. of 15,200-16,500 (pref. 15,501-16,505) and has a high affinity for heparin. PF1 and fragments are useful for promoting the growth of mesoderm-derived cells on neuroectoderm-derived cells and generating endothelial cell linings for vascular prostheses (all sequence 140 AA).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 989; DB 1; Length 140;
Pred. No. 1.80e-82;
1; Mismatches 1; Indels
                                                            18-DEC.1.2.
29-AR-1991; US-bs.v...
27-NOV-1991; US-799859.
03-NOV-1994; US-334884.
A (RHON ) RHONE POULENC RORER PHARM INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualiflers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     표 6
P70995 standard; protein; 140 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14-0CT-1987, 301969.
06-WAR-1986; 301969.
07-WAR-1986; US-838096.
(HARD ) HARVARD COLLECE.
LObb RR, Harper JW, Strydom DJ; WPI; 87-285995/41.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /label- Asp-OH
                                                                                                                                                                                                                                                                                                                                                                                                                                     Ouery Match 54.6%;
Best Local Similarity 98.5%;
Matches 135; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       124 HYGOKAILFLPLPVSSD 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          238 HYGQKAILFLPLPVSSD 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Misc_difference 140
             03-SEP-1996.
03-MAR-1986;
                                                03-MAR-1986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EP-241136-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                14-0CT-1987
                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
                                                                                                                                                                                                                                                                                                                                              99888
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
```

ö

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                   178 YLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCRRGPRT 237
                                                                       118 PVANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQ 177
                                                                                                     YLAMDIDGLLYGSQIPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRT 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            YLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRT 124
                                        PPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQ 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5 PPGNYKKPKILLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQ 64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
               0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Anti-acid antibody, for cancer diagnosis, etc. - is obtd. by using complex of partial peptide(s) of acid fibroblast growth factor and protein as antigen.

Disclosure; Fig 1; 19pp; Japanese.

The was deduced from a gene used to produce recombinant aFGF.

Peptides derived from the protein, esp. from A-D can be used to as antigens to produce anti-aFGF antibodies. The peptides must comprise 8-10 continuous AAs from A or B (claims 5 and 6 resp.), 7-10 continuous AAs from C (claim 7), or 8-9 continuous AAs from D (claims 9). The Abs can be used for immunochemically measuring aFGF, and for purifying aFGF. They are useful as reagents in the diagnosis of various cancers or diseases of the CNS. Purified aFGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 141;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    has wound healing and nerve cell proliferating properties Sequence 141 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 989; DB 1; Length 141
Pred. No. 1.80e-82;
1; Mismatches 1; Indels
red. No. 1.80e-82;
1; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                 Human acidic fibroblast growth factor gene. aFGF; antibody; antigen; cancer; ss.
                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
Pred.
                                                                                                                                                                                                                                                   R10527 standard; Protein; 141 AA. R10527;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (TAKE ) TAKEDA CHEMICAL IND KK. WPI; 91-040150/06.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   54.6%;
larity 98.5%;
Cónservative
Best Local Similarity 98.5%;
Matches 135; Conservative
                                                                                                                                                                                                                                                                                                                                                               2. .12
/label= A
56. .67
/label= B
/label= C
132. .141
/label= C
                                                                                                                                                                                                                                                                                   15-APR-1991 (first entry)
                                                                                                                                                               124 HYGQKAILFLPLPVSSD 140
                                                                                                                                                                                HYGOKAILFLPLPVSSD 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HYGQKAILFLPLPVSSD 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HYGOKAILFLPLPVSSD 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            03-JUL-1989; 172542.
04-JUL-1988; JP-166275.
03-JUL-1989; JP-172542.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity
Matches 135; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N-PSDB; Q10399
                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   J02306996-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20-DEC-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                       region
                                                                                                                                                                                                                                                                                                                                                               region
                                                                                                                                                                                                                                                                                                                                                                                             region
                                                                                                                                                                                                                                                                                                                                                                                                                                                       region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    125
                                                                                                       64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        65
                                                                                                                                                                                             238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 238
                                                                                                                                                                                                                                                                                                                                                 Key
                                                                                                                                                                                                                                       RESULT
                                                                                                    ద
                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                           음
                                                                         à
                                                                                                                                 à
                                                                                                                                                               셤
                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
```

Query Match

4

ö

Gaps

ö

1; Indels

N-PSDB;

R05789

```
Burgess W, Drohan WN, Jaye M, Maciag T;
WPI: 99-069734/06.

DNR encoding a cleavable signal peptide and an endothelial cell
DNR hactor - useful for producing recombinant endothelial cell
growth factor proteins
Claim 1; Column 16; 23pp; English.
This represents the amino acid sequence of human beta-endothelial cell
growth factor (EGGF). The invention is directed to DNR encoding alpha-
or beta-EGGF and plasmids comprising the DNR sequences. The DNR encodes a
cleavable signal peptide and an EGGF, where removal of the signal peptide
signal peptide and an EGGF. The DNR is used to produce recombinant
EGGF proteins, which can be used in treatments to repair or regenerate
blood vessels, or other structures lined with endothelial cells.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Isolated, purified, biologically active bovine beta endothelial cell growth factor - useful to regenerate or treat damaged blood vessels bisclosure; Fig 8: 28pp; English.

Bovine beta-endothelial cell growth factor (beta-ECGF; W0399) having a mol.wt. of 20 kD can be purified at least 16300 fold from bovine brain using heparin-Sepharose affinity chromatography. ECGF is useful for, among other purposes, diagnostic applications and has potential in the treatment of damaged blood vessels or other endothelial cell-lined structures. Human ECGF (737503) or fragments may be obtained using oligonucleotides (737504 and 737508 to 737509) whose design is based on the sequence of bovine alpha- and beta-ECGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                78 YLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRT 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          118 PVANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQ 177
                                                                                                                                                                                                                                                                                                                                                                                                                                          18 PPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQ 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQ 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               29-DEC-1996 (first entry)

Human beta-endothelial cell growth factor.

Endothelial cell growth factor; EGGF; blood vessel; regeneration;

Endothelial cell growth factor; EGGF; blood vessel; regeneration;

FGF; fibroblast growth factor.

Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 989; DB 1; Length 154; Pred. No. 1.80e-82;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 989; DB 1; Pred. No. 1.80e-82;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                          1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              03-55E-1996.
03-MAR-1986. 835594.
03-MAR-1986. US-835594.
18-DEC-1987. US-134499.
29-APR-1991. US-693079.
27-NOV-1991. US-693079.
03-NOV-1994. US-34884.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          T 10
W04805 standard; Protein; 154 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 54.6%;
Best Local Similarity 98.5%;
Matches 135; Conservative
                                                                                                                                                                                                                                                                                                                                             74.6%;
Local Similarity 98.5%;
hes 135; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          138 HYGQKAILFLPLPVSSD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Burgess W, Maciag T;
WPI; 96-412132/41.
N-PSDB; T37503.
                                                                                                                                                                                                                                                                                                  154 AA;
                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     W04805;
                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                     Gene encoding human acidic fibroblast growth factor fence according human acidic fibroblast growth factor first as useful restriction sites at frequent intervals to facilitate cassette mutagenesis of specified regions.

Claim 2, Fig 33, 12pp; English.

Claim 2, Fig 33, 12pp; English.

Claim 2, Fig 34, 12pp; English.

The synthetic affg gene incorporates useful restriction sites at frequent intervals to facilitate the cassette mutagenesis of selected regions. Also included are flanking sites to simplify the incorporation of the gene into any expression system.

The affg mol. acts in a cascade effect to control endothelial cell activity either co-ordinately through synergistic effects or via independent routes. The regulation of endothelial cells is essential for the protection of arteries, veins and capillaries from the effect of thrombogenesis. Their stimulation and control by these factors is also thought to be important in the development of tumours and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20-APR-1999 (first entry)
Human beta-endothelial cell growth factor (ECGF) protein sequence.
Endothelial cell growth factor; ECGF; cleavable; recombinant; repair; regenerate; blood vessel; endothelial cell; human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   69 YLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRT 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             118 PVANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQ 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9 PPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQ 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Gaps
                                                                                                                                                                                                            of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 151;
                                                                                                                                                                                                            to two stop codons
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1; Indels
                                                                  Human aFGF encoded by synthetic gene.
Acidic fibroblast growth factor; aFGF; thrombogenesis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 989; DB 1; Pred. No. 1.80e-82; 1; Mismatches 1
                                                                                                                                                        They Location/Qualifiers Misc_difference 146. .147 //note= "sites corresp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11-APR-1997; US-840088.
(RHON ) RHONE-POULENC RORER PHARM INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           л
W92283 standard; protein; 154 AA.
       standard; Protein; 151 AA
                                                                                                                                                                                                                                  the DNA sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 54.6%;
Best Local Similarity 98.5%;
Matches 135; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           129 HYGOKAILFLPLPVSSD 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     08-AUG-1988; GB-018775.
(BRBI-) Brit Bio-Tech Ltd.
Davies JA, Johnson ID;
WPI: 90-109882/15.
                                                  (first entry)
                                                                                                                    atherosclerosis; tumors. Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-134499.
US-693079.
US-799859.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-334884.
US-472964.
US-840088.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-743261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-835594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           840088
                                                                                                                                                                                                                                                                                                  08-AUG-1988; 018775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           atherosclerosis.
Sequence 151 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens.
US5849538-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             11-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                04-NOV-1996;
03-MAR-1986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              18-DEC-1987;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        29-APR-1991;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           27-NOV-1991;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                03-NOV-1994;
                       R05789;
22-AUG-1990
                                                                                                                                                                                                                                                       GB2223496-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        15-DEC-1998
                                                                                                                                                                                                                                                                               11-APR-1990
```

g ò g W92283;

ö

Gaps

ö

1; Indels

Length 154;

S

118 78

쉽

g

ò

ò

RESULT ID WG AC WG DT 17 DE HI KW ER

```
06-JUL-1988; 306158.
07-JUL-1987; US-070797.
(BIOT-) Blotechn Res Assoc.
Fiddes JC, Abraham JA, Protter A;
WPI; 89-009785/02.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           T 13
P94037 standard; protein; 155
                                                                                                                                                                                                                                                                                                                                                                                                       Match 54.6%;
Local Similarity 98.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                / Match
Local Similarity 98.5%;
les 135; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HYGOKAILFLPLPVSSD 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         138 HYGOKAILFLPLPVSSD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches 135; Conservative
               04-NOV-1996; US-743261.

03-MAR-1986; US-835594.

18-DEC-1987; US-134499.

29-APR-1991; US-693079.

03-NOV-1991; US-799859.

03-NOV-1994; US-334884.

07-JUN-1995; US-472964.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Disclosure; p; English.
See also P94036.
Sequence 155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens.
EP-298723-A.
11-JAN-1989.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N-PSDB; N93088
   04-NOV-1996; 1
04-NOV-1996; 1
03-MAR-1986; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         25-JUN-1990
                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             P94037;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                  PVANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQ 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              118 PVANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQ 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            78 YLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRT 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               18 PPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQ 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Claim 1: Column 166. 22pp; English.

Human recombinant endothelial cell growth factors (ECGF) beta
(W06816) and alpha (W06817) differ only at their N-terminal ends.
They can be produced in transformed prokaryotic or eukaryotic host cells using DNA sequences (745983 and 745984, respectively) derived from the complete human ECGF cDNA (745985). Large quantities of the ECGFs are produced by culturing the host cells and recovering the proteins. ECGFs have utility in the growth and amplification of endothelial cells in culture. They can potentially be used to treat damaged blood vessels and other endothelial cell-lined structures, and also have diagnostic applns.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                YLAMDIDGLLYGSQIPNEECLFLERLEENHYNIYISKKHAEKNWFVGLKKNGSCKRGPRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Recombinant human endothelial cell growth factors - for treating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Human beta-endothelial cell growth factor.
Human: endothelial cell growth factor; ECGF; brain stem; probe;
hybridisation; bovine; wound healing; prosthetic device.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 989; DB 1; Length 154;
Pred. No. 1.80e-82;
1; Mismatches 1; Indels
                                                                                                                                                                                                                             17-WAR-1997 (first entry)
Human endothelial cell growth factor-beta.
Endothelial cell growth factor-beta; EGGF-beta.
                                                                                                                                                                                                                                                                                                                                                                                                                                                    (RHON ) RHONE POULENC RORER PHARM INC.
Burgess W, Drohan WN, Jaye M, Maciag T;
WPI; 96-505421/50.
N-PSDB; T45983.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            W75414 standard; protein; 154 AA. W75414; 02-MAR-1999 (first entry)
                                                                                                                                                                                T 11
W06816 standard; Protein; 154 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            54.6%;
98.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         damaged blood vessels, etc.
                                                                                                                    HYGOKAILFLPLPVSSD 254
                                                                                                 138 HYGQKAILFLPLPVSSD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            138 HYGQKAILFLPLPVSSD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local Similarity 98.5%;
atches 135; Conservative
                                                                                                                                                                                                                                                                                                                                                                 18-DEC-1987; US-134499.
29-APR-1991; US-693079.
27-NOV-1991; US-799859.
03-NOV-1994; US-334884.
07-JUN-1995; US-472964.
                                                                                                                                                                                                                                                                                                                                                     US-835594
                                                                                                                                                                                                                                                                                                                                  03-MAR-1986; 835594
03-MAR-1986; US-835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens.
US5827826-A.
27-OCT-1998.
                                                                                                                                                                                                                                                                                                                    05-NOV-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
```

238

õ

D S M K K E D I G D S O M K K E D I G O M K K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M K E D I G O M

g

å 요 õ

```
cell growth factor polypeptides
Claim 1: Column 16: 23pp: English.
This sequence represents the amino acid sequence of the mature human
beta-endothelial cell growth factor (b-ECGF). This amino acid sequence
is identical to the alpha-ECGF but the beta sequence contains an extra
20 N-terminal amino acids. The sequence was isolated from a human brain
stem cell cDNA library using a probe designed based on fragments of the
bovine ECGF (see W75416-W75418). The ECGF protein can be used in
compositions for promoting wound healing. ECGF is also used to grow
cells on a prosthetic device.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            78 YLAMDIDGLLYGSQIPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRT 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        118 PVANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLGLSAESVGEVYIKSTETGQ 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  YLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRT 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        18 PPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQ 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19 PPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQ 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Gaps
                                                                                                 Compositions for promoting wound healing - containing endothelial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Recombinant DNN. encoding new fibroblast growth factor analogues - useful eg for accelerating wound healing a to control neovascularisation.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 989; DB 1; I
Pred. No. 1.80e-82;
1; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 989; DB 1; 1
Pred. No. 1.80e-82;
1; Mismatches 1.
(RHON) RHONE-POULENC RORER PHARM INC.
Burgess W, Drohan WN, Jaye M, Maclag T;
WPI; 98-594032/50.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  25-JUN-1990 (first entry)
Human acidic fibroblast growth factor.
Acidic fibroblast growth factor.
```

```
Search completed: Tue Aug 29 16:00:40 2000 Job time: 33 secs.
                                                                  03-MAR-1986; US-835594.
26-MAR-1987; ES-000812.
                       11-SEP-1987.
02-MAR-1987; U00425.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                     BIOTECH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     178 YLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRT 237
                                                                                                                                                                                                                                                                         FGF-1; fibroblast growth factor; cytotoxic conjugate; fusion protein; saporin; cytostatic; tumor; diabetes; rheumatoid arthritis. Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     19 PPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQ 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            02-AUG-1993; US-099924.
29-OCT-1993; US-145829.
(PRIZ-) PRIZM PHARM INC.
(WHIT-) WHITHIER INST DIABETES & ENDOCRINOLOGY.
Baird AJ, Lappi DA, Sosnowski BA;
WPI; 95-082038/11.
New monogenous preparations of cytotoxic conjugates and DNA -
contain fibroblast growth factors and cytotoxic agents for
treating FGF conditions such as tumours, diabetes and rheumatoid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13-MAX-1991 (first entry)
Sequence encoded by complete CDNA sequence of human endothelial cell growth factor (ECGF).
Endothelial cell regeneration; blood vessel regeneration.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 54.6%; Score 989; DB 1; Length 155; Best Local Similarity 98.5%; Pred. No. 1.80e-82; Matches 135; Conservative 1; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                      /note= "Cys may be replaced by Ser"
                                                                                                                                                                                                                                                                                                                                                                        /note= "Cys may be replaced by Ser'
                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    16. .21
/label=_Acidic FGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            22. .155
/label= Alpha ECGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2. .15
/label= Beta ECGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                T 15
P70482 standard; Protein; 155 AA.
P70482;
                                                                                                                                                                                R70812 standard; protein; 155 AA. R70812; 01-SEP-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                139 HYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          139 HYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO9503831-A.
                                                                       238 HYGOKAILFLPLPVSSD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              27-JUL-1994; U08511
                                                                                                                                                                                                                                                                                                                                                                      misc_difference 31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              arthritis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ID DE DOLL DE LA CONTRE LA
                                             셤
                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
  ò
                                                                                             ò
```

1/2

```
79 YLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRT 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               178 YLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRT 237
                                                                                                                                                                                                                             Human endothelial cell growth factor - produced by recombinant DNA techniques, useful for wound healing Example; Fig 8; 45pp; English.

Example; Fig 8; 45pp; English.

To screen the human brain stem CDNA library for clones contg. ECGF inserts, a specific oligonucleotide was designed. This colligonucleotide was based upon a partial AA sequence analysis of the amino terminus of ECGF (see F70480 and P70481). Fig 3c sets forth for comparison the AA sequence of cyanogen bromide-cleaved bovine alpha and beta ECGF (P70834). The two clones that were isolated, ECGF clones 1 and 29, were analysed in further detail. The nucleotide sequence of these clones and the AA sequence deduced from the nucleot acid sequence is shown in Fig 8 (see N70788 and P70482).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      19 PPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQ 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 989; DB 1; I
Pred. No. 1.80e-82;
1; Mismatches 1;
                                                                                                                                     Jaye M, Burgess W, Maciag T, Drohan W;
WPI; 87-264128/37.
N-PSDB; N70788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Match
Local Similarity 98.5%;
Les 135; Conservative
(MELO-) MELOY LAB INC.
(RORE ) RORER BIOTECHN INC
(RORE-) RORER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              139 HYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     238 HYGQKAILFLPLPVSSD 254
```

ö

*	
****	(MI)
****	,
****	''
******	
******	
****	
****	
*****	
***************************************	
*	•

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

MPsrch\_pp protein - protein database search, using Smith-Waterman algorithm Tue Aug 29 15:58:50 2000; MasPar time 14.61 Seconds 820.223 Million cell updates/sec : uo u

abular output not generated.

>US-09-121-017B-21 (1-254) from US09121017B.pep 1813 1 MAPARLFALLEFFVGGVAES......PRTHYGQKAILFLPLPVSSD 254 Title: Description: Perfect Score: Sequence:

PAM 150 Gap 11 Scoring table:

142080 segs, 47172406 residues

Searched:

Post-processing: Minimum Match 0% Listing first 45 summaries

pir64 1:pirl 2:pir2 3:pir3 4:pir4 Database:

Mean 45.966; Variance 85.767; scale 0.536 Statistics: Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

### SUMMARIES

Pred. No.	1.20e-184	9.29e-182	9.29e-182	4.31e-181	9.26e-178	1.17e-170	1.17e-170	3.20e-168	8.96e-149	1.28e-87	1.47e-83	2.80e-82	2.80e-82	8.68e-81	1.42e-80	1.42e-80	7.13e-79	1.90e-78	1.54e-76	1.13e-71	1.53e-46	1.53e-46	2.77e-42
Description	acidic fibroblast gro	fibroblast	acidic fibroblast gro		acidic fibroblast gro	acidic fibroblast gro			ryudocan precursor -	ryudocan precursor -	basic fibroblast grow	basic fibroblast grow	basic fibroblast grow	basic fibroblast grow		basic fibroblast grow	ryudocan precursor -	basic fibroblast grow	basic fibroblast grow	fibroblast growth fac	fibroblast growth fac	fibroblast growth fac	fibroblast growth fac
ai	A33665	D37360	S04147	A60721	JH0476	GKBOA	A60130	JW0055	JC1457	A42410	A48834	S00185	GKBOB	A32398	C37360	A31674	JC5613	S31622	A40117	146711	A48137	S66486	JC5941
98	-	~	~	Н	7	Н	~	7	~	~	~	-	Н	~	~	~	~	7	7	~	~	~	7
% Query Match Length DB	155	155	155	155	152	155	155	155	198	202	189	146	157	210	154	154	198	164	155	137	208	208	207
% Query Match	54.6	53.8	53.8	53.7	52.8	51.1	51.1	50.5	45.6	30.1	29.1	28.7	28.7	28.4	28.3	28.3	27.9	27.7	27.2	26.0	19.3	19.3	18.1
Score	686	976	916	973	928	926	926	915	827	546	527	521	521	514	513	513	505	503	464	471	350	350	329
esult No.	-	7	m	4	2	φ	7	80	6	10	11	12	13	14	15	16	17	18	19	20	21	22	23
•																							

2.82e 1.782e 1.782e 1.782e 1.782e 1.782e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.256e 1.2	1.21e-23
	keratinocyte growth t
JG5940 849501 A86301 148610 526049 523595 524040 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 150710 15	B46289
	7
01111102 0201111102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 0201102 02	2
00000000000000000000000000000000000000	12.3
233690 2440 2550 2550 2550 2550 2550 2550 255	734
40000000000000000444444444444444444444	40

## ALIGNMENTS

ST 1 A3 CC	A53639 A5365 A33665 #authors Mergia, A.; Tischer, E.; Graves, D.; Tumolo, A.; Miller, J.; Gospodarowicz, D.; Abraham, J.A.; Shipley, G.D.; Fiddes, J.C. #journal Blochem. Blophys. Res. Commun. (1989) 164:1121-1129 #title Structural analysis of the gene for human acidic fibroblast #coss-references MUID:90073637 #accession. A33665	##molecute_type DNA ##residues 1-155 ##label MER ##residues 1-155 ##label MER ##cross-references GB:M30491 ERENCE A32316 #authors Wang, W.P.; Lehtoma, K.; Varban, M.L.; Krishnan, I.; Chiu, I.M. Mol. Cell. Biol. (1989) 9:2387-2395 #title Cloning of the gene coding for human class 1 heparin-binding #cross-references MUID:89343957 #cross-references MUID:89343957 #accession A32316	olecule_ esidues ross-ref rs	references MUD:920 sion S18217 olecule_type DNA esidues 1-155 for soss-references EMB1
RESULT ENTRY TITLE ALTERNATE_ ORGANISM DATE ACCESSIONS	REFERENCE #author #journa #title #cross- #access	##mo ##re ##re ##cross- #access-	##no ##no ##ro ##ro ##cr REFERENCE #author #journa #title	#CCOSS- #ACCOSS- ##ADO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- #####TO- ####TO- ####TO- #####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ####TO- ###TO- ####TO- ####TO- ####TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- ###TO- #

~

```
##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CLASSIFICATION
KEYWORDS
FEATURE
16-155
                                                                                                                                                                                                                                                                                                                                                           #authors
#journal
#title
                                                                                                                                                #journal
#title
                                                                                                                               #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENETICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #dene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                    ##coss_run
##molecule_type mRNA
##residues
##residues
##cross_references GB:M13361; NID:g181941; PIDN:AAA79245.1; PID:g181942
##cross_references M110:g18202857
##cross_references M11D:g2202857
##cross_references M11D:g2202857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##rcsidues
##cross-references GB:M60515; NID:q178226; PIDN:AAA51672.1; PID:q553170;
GB:M60516; NID:q178232; PID:q553171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##molecule_type mRNA
##residues 1-155 ##label CHI
##cross-references EMBL:X51943; NID:g32435; PIDN:CAA36206.1; PID:g32436
#authors Chiu, I.M.; Wang, W.P.; Lehtoma, K.
#journal Oncogene (1990) 5:755-762
#title Alternative splicing generates two forms of mRNA coding for human heparin-binding growth factor 1.
#cross-references WUID:90265618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             encodes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A.
Biochem. Biophys. Res. Commun. (1986) 138:611-617
The complete amino acid sequence of human brain-derived
                                                                                                                                                                                                                                                                           #title Human endothelial cell growth factor: cloning, nucleotide sequence, and chromosome localization.
#cross-references MID:86261805
#accession A24662
                                                                                                                                                                                                               G.A.; Chiu, I.M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #authors Crumley, G.; Dionne, C.A.; Jaye, M.
#journal Biochem. Biophys. Res. Commun. (1990) 171:7-13
#title The gene for human acidic fibroblast growth factor encod two upstream exons alternatively spliced to the first coding exon.
#cross-references MUID:90365758
                                                                                                                                                                                                             Jaye, M.; Howk, R.; Burgess, W.; Ricca, G.A.; Chiu, I..
Ravera, M.W.; O'Brien, S.J.; Modi, W.S.; Maciag, T.;
Drohan, W.N.
Science (1986) 233:541-545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #authors Harper, J.W.; Strydom, D.J.; Lobb, R.R. #journal Blochemistry (1986) 25:4097-4103 #cross-references MUID:86296647 #accession A23553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##molecule_type protein
##residues 16-155 ##label HAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##cross_references GB:L01485
cession S3536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##molecule_type mRNA
##residues 1-58 ##label PA2
##cross-references GB:L01487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A24820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A23553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      535535
                                                                                                     A43804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           I39413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #accession
                                                                                                         #accession
                   #journal
#title
                                                                                                                                                                                                                 #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                       REFERENCE
```

```
#authors Gautschi-Sova, P.; Muller, T.; Bohlen, P. #Journal Blochem. Blophys. Res. Commun. (1986) 140:874-880 #title Amino acid sequence of human acidic fibroblast growth factor. #accession A26386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #product fibroblast growth factor 1 #status experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##ncolecule_type protein
##residues 16-30,'X',32-38;73-75,'X',77-97,'X',99-101;128-131,'X',
##residues 133-140,'X',142-152 ##tabel CHA
                                                                                                                                                    Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A. Biochem. Blophys. Res. Commun. (1986) 135:341-548 Human brain-derived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitogenic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       79 YLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRT 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #label MAT\
#binding_site_carbohydrate=(Asn)_(covalent).#status.
                                                                                                                                                                                                                                                                                                                                                                                                                      Gautschi, P.; Frater-Schroder, M.; Bohlen, P. FEBS Lett. (1986) 204:203-207 Partial molecular characterization of endothelial cell mitogens from human brain: acidic and basic fibroblast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Biochemistry (1994) 33:7193-7202
Interaction of nucleotides with acidic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            19 PPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQ 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #superfamily fibroblast growth factor alternative splicing; growth factor; heparin binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #length 1555 #molecular-weight 17460 #checksum 9243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 989; DB 1; Length 155;
Pred. No. 1.20e-184;
1; Mismatches 1; Indels
acidic fibroblast growth factor.
#cross-references MUID:86295741
#accession A24820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##molecule_type protein
##residues 16-30,'X',32-49 ##label GAU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##cross-references GDB:119909; OMIM:131220
#map_position 5q31.3-5q33.2
#introns 57/1; 91/3
                                                                            ##molecule_type protein
##residues 16-155 ##label GIM
                                                                                                                                                                                                                                                                                                                           ##experimental_source brain
NCE A91364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #cross-references MUID:942717/3
#accession A53639
                                                                                                                                                                                                                                                                         #cross-references MUID:86186784
#accession A24243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                growth factors.
#cross-references MUID:86275260
#accession A24301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     factor (FGF-1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 54.6%;
Best Local Similarity 98.5%;
Matches 135; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GDB: FGF1; FGFA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #label
                                                                                                                                                                                                                                                          activities
                                                                                                                                 A90122
```

ö

growth factor

m

```
The nucleotide sequence of rat heparin binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1-155 ##label HAL
                                                                                                                                                                                                                                                                                                                                                      CKRGPRTHYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CKRGPRTHYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CKRGPRTHYGQKALLFLPLPVSSD 254
                                                                                                                                                                                                                                                                                                                                                                     CKRGPRTHYGOKAILFLPLPVSSD 254
              1 (HBGF-1).
#cross-references MUID:89240051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10-Sep-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##molecule_type DNA
                                            S04147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A60721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ALTERNATE_NAMES
ORGANISM
                                                                                                       CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CLASSIFICATION
                                           #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSIONS
                                                                                                                                                                                                                               12
                                                                                                                                                                                                                                                                                                                                                      132
                                                                                                                                                                                                                                                                                                                                                                                   231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       title
 #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ENTRY
TITLE
ORGANISM
DATE
                                                                                                                       KEYWORDS
SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                               요
                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                        Dev. Biol. (1990) 138:454-463
Isolation of cDNAs encoding four mouse FGF family members and
characterization of their expression patterns during
                                                                                                                                                                                                                                                                                                                                                                ##residues 1-155 ##label HEB ##cross-references GB:M30641; NID:g193284; PIDN:AAA37618.1; PID:g309236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1;
                                                                                                                                                                                                             Hebert, J.M.; Basilico, C.; Goldfarb, M.; Haub, O.; Martin,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         72 KGTETGQYLAMDTEGLLYGSQTPNEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGS 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This protein is an inducer of neovascularization in angiogenic disease including atherosclerosis, cancer and inflammatory autoimmune disease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        12 LTERFNLPLGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYI 71
                                                                                                                     #formal_name Mus musculus #common_name house mouse 17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change 16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Goodrich, S.P.; Yan, G.C.; Bahrenburg, K.; Mansson, P.E.
Nucleic Acids Res. (1989) 17:2867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       *text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #Superfamily fibroblast growth factor
#length 155 #molecular-weight 17417 #checksum 9341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ä
                                                                                                                                                                                                                                                                                                                                                                                                              #authors Madiai, F.; Hackshaw, K.V.; Chiu, I.M.
#journal Gene (1996) 179:231-236
Cloning and Characterization of the mouse Fgf-1
#cross-references MUID:97128312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 976; DB 2; Length 155;
Pred. No. 9.29e-182;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  acidic fibroblast growth factor 1 - rat
heparin-binding growth factor 1
#formal_name Rattus norvegicus #common_name
18-Feb-1990 #sequence_revision 28-Feb-1990 #
                                                                                      D37360 #type complete
acidic fibroblast growth factor - mouse
aFGF; FGF-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1-155 ##label MAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               132 CKRGPRTHYGOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 231 CKRGPRTHYGQKAILFLPLPVSSD 254
                                                                                                                                                                                                                                                                                        embryogenesis.
#cross-references MUID:90201563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##cross-references GB:U36456
                                                                                                                                                                                                                                                                                                                                   preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             53.8%;
91.7%;
                                                                                                                                                                                D37360; JC5231
HYGOKAILFLPLPVSSD 155
                 HYGOKAILFLPLPVSSD 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Fgf-1
57/1; 91/3
                                                                                                                                                                                                                                                                                                                                                   ##molecule_type mRNA
##residues 1-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##molecule_type DNA
##residues 1-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
Matches 132; Conser
                                                                                                                                                                                                                             G.R.
                                                                                                                                                                                               A37360
                                                                                                                                                                                                                                                                                                                      D37360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JC5231
                                                                                                                    ALTERNATE_NAMES ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ALTERNATE_NAMES ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #introns
CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                     ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #accession
                                                                                                                                                                                                                                                                                                                      #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #authors
#journal
                                                                                                                                                                                                                                                                                                                                                                                                            #authors
                                                                                                                                                                                                                #authors
                                                                                                                                                                                                                                           #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSIONS
REFERENCE
139
                            238
                                                                                                                                                                               ACCESSIONS
                                                                                                                                                                                                                                                           #title
                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENETICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #dene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SUMMARY
                                                                         RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ద
윱
                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
```

```
A60721 #type complete acidic fibroblast growth factor - golden hamster heparin-binding growth factor - formon_name golden hamster #formal_name Mesocritectus auratus #common_name golden hamster 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change
##molecule_type mRNA
##residues 1-155 ##label GOO
##cross-references EMBL:X14232; NID:g56351; PIDN:CAA32448.1; PID:g56352
##cross-references EMBL:X14232; NID:g56351; PIDN:CAA32448.1; PID:g56352
| ##cross-references EMBL:X1423; NID:g56351; PIDN:CAA32448.1; PID:g56352
| ##cross-references EMBL:X1423; NID:g56351; PIDN:CAA32448.1; PID:g56352
| ##cross-references EMBL:X1423; PID:g56352; PID:g56352
| ##cross-references EMBL:X1423; PID:g56352; PID:g56352
                                                                                                                                                                                                                                                                                          ï
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JH0476 #type fragment acidic fibroblast growth factor - pig (fragment) #formal_name Sus scrofa domestica #common_name domestic pig 31-Mar-1992 #sequence_revision 31-Mar-1992 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hall, J.A.; Harris, M.A.; Malark, M.; Mansson, P.E.; Zhou, H.; Harris, S.E.
J. Cell. Briochsn. C.
J. Cell. Briochsn. C.
Characterization of the hamster DDT-1 cell aFGF/HGBF-1 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LTERFNLPLGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYI 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12 LTERFNLPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYI 71
                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #superfamily fibroblast growth factor
growth factor; heparin binding
#length 155 #molecular-weight 17403 #checksum 9573
                                                                                                                                                                                                                                                                                          ï
                                                                                                                                                                                                                                    Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               not compared with conceptual translation
                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     and cDNA and its modulation by steroids #cross-references MUID:90270291
                                                                                                                                                                                                                                                          Pred. No. 9.29e-182; 7; Mismatches 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 53.7%; Score 973; DB 1; Lv
Best Local Similarity 92.4%; Pred. No. 4.31e-181;
Matches 133; Conservative 5; Mismatches 5;
                                                                                                                                                                                                                                    DB 2;
                                                                                                                                                                                                                          Query Match 53.8%; Score 976; Best Local Similarity 91.7%; Pred. No. 9 Matches 132; Conservative 7; Mismat
```

```
##residues
                                                                                                                                                                                                         #authors
#submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #accession
                                                                                                                                                                                                                                                  #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #accession
                                                                                                         #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      fauthors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Halley, C.; Courtois, Y.; Laurent, M.
Nucleic Acids Res. (1988) 16:10913
Nucleotide sequence of bovine acidic fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Heterogeneity of 3' untranslated region of bovine acidic FGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Alterio, J.; Halley, C.; Brou, C.; Soussi, T.; Courtois, Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GKBOA #type complete
acidic fibroblast growth factor precursor - bovine
acidic fibroblast growth factor II; heparin-binding growth
factor I; prostatropin
#formal_name Bos primigenius taurus #common_name cattle
13-Aug-1986 #sequence_revision 03-Feb-1994 #text_change
                                                                                                                                                                             ##residues 1-152 ##label SCH
##cross-references EMBL:X60317; NID:g1873; PIDN:CAA42869.1; PID:g1874
###nntal_source heart
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               79 YLAMDTSGLLYGSQTPSEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGPRT 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               178 YLAMDTDGLLYGSOTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRT 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JH0613; S02102; S02661; S22065; B24663; A94281; S03953; A91010; A24477; B25043; A25043; A25043; A24477; A25084; A37892; B37892; A61198; I46024; A34477; A01385
                                                                                                                                                                                                                                                      te the hydrophobic core residues are packed around the internal symmetry axis
This protein belongs to the fibroblast growth factor family.

IION #superfamily fibroblast growth factor growth factor; heparin binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##molecule_type mRNA
##residues 1-155 ##label HAL
##cross-references EMBL:X13221; NID:g347; PIDN:CAA31610.1; PID:g348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          19 PPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQ 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Renaud, F.; Desset, S.; Bugra, K.; Halley, C.; Philippe,
J.M.; Courtols, Y.; Laurent, M.
Blochem. Biophys. Res. Commun. (1992) 184:945-952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                       #authors Schmidt, M.; Sharma, H.S.; Schott, R.J.; Schaper, W. Biochem. Biophys. Res. Commun. (1991) 180:853-859 #title Amplification and sequencing of mRNA encoding acidic fibroblast growth factor (aFGF) from porcine heart.
                                                                                                                                                                                                                                                                                                                                                                                                            #binding_site heparin (Lys) #status predicted
#length 152 #checksum 1124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         52.8%; Score 958; DB 2; Length.152; larity 96.3%; Pred. No. 9.26e-178; Conservative 2; Mismatches 3; Indels
                                                                                                                                                                                                                                                                                                                                                                                           #region nuclear location signal/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               58-155 ##label REN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               transcripts.
#cross-references MUID:92246990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #cross-references MUID:89083506
#accession S02102
                   JH0476; S20072
16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             18-Jun-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         139 HYGQKAILFLPLPV 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##molecule_type mRNA
##residues 1-152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity
les 129; Conser
                                      JH0476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JH0613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S02102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                           CLASSIFICATION
                                                                                                                                                            #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #authors
#journal
                                                         #authors
#journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CESSIONS
                     ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                             SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                  KEYWORDS
                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
```

```
#authors Abraham, J.A.; Mergia, A.; Whang, J.L.; Tumolo, A.; Friedman, J.; Hjerrild, K.A.; Gospodarowicz, D.; Fiddes, J.C.
#journal Science (1986) 233:545-548
#title Nucleotide sequence of a bovine clone encoding the anglogenic protein, basic fibroblast growth factor.
#cross.references MUID:86261806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gimenez-Gallego, G.; Rodkey, J.; Bennett, C.; Rios-Candelore, M.; Disalvo, J.; Thomas, K. Science (1985) 220: 3385-1388 Brain-derived acidic fibroblast growth factor: complete amino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Quinkler, W.; Maasberg, M.; Bernotat-Danielowski, S.; Luethe, N.; Sharma, H.S.; Schaper, W.
Eur. J. Blochem. (1989) 181:67-73
Isolation of heparin binding growth factors from bovine,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Crabb, J.W.; Armes, L.G.; Carr, S.A.; Johnson, C.M.; Roberts, G.D.; Bordoli, R.S.; McKeehan, W.L.
Blochemistry (1986) 25:4988-4993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #journal Proc. Natl. Acad. Sci. U.S.A. (1986) 83:7216-7220
#title Structural evidence that endothelial cell growth factor beta is the precursor of both endothelial cell growth factor alpha and acidic fibroblast growth factor.
#cross-references.MUID:87016918
#journal FEBS Lett. (1988) 242:41-46
#title Characterization of a bovine acidic FGF cDNA clone and its
expression in brain and retina.
#cross-references WUID:89078619
                                                                                                                                                                                                                                                                                                                              ##molecule_type mRNA
##residues 1-18 ##label PHI
##cross-references EMBL:X66446; NID:9411; PIDN:CAA47063.1; PID:9412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Burgess, W.H.; Mehlman, T.; Marshak, D.R.; Fraser, B.A.;
Maciag, T.
                                                                                                                                                                                             ##cross-references EMBL:X14032; NID:g322; PIDN:CAA32192.1; PID:g323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #title Complete primary structure of prostatropin, a prostate epithelial cell growth factor. #cross_references MUID:87026586
                                                                                                                                                                                                                                           Philippe, J.M. submitted to the EMBL Data Library, May 1992 $22065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #accession A91010
##molecule_type protein
##molecule_type protein
##molecule_type protein
##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type protein
##residues 2,'GE',5-155 ##label CRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              porcine and canine hearts #cross-references MVID:89231704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##molecule_type mRNA
##residues 62-102 ##label ABR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##molecule_type protein
##residues 16-155 ##label GIM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##molecule_type protein
##residues 16-45 ##label QUI
                                                                                                                                                                         ALT
                                                                                                                                                                      1-155 ##label
                                                                                                                                      ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A91010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A94281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S03953
                                                                                                                                                                                                                                                                                                                                                                                                                          A94290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B24663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A94281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          503953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A94127
                                                                                                               S02661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A24477
```

S

```
A34477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ALTERNATE_NAMES ORGANISM.
                                                                                                                                 ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #status
                                                                                                              #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           fauthors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                      COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #accession C25U4.3
##molecule_type protein
##residues 16-155 ##label BU2
##residues this form was designated acidic fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Brain Res. Dev. Brain Res. (1991) 63:13-19
Class 1 heparin binding growth factor promotes the
differentiation but not the survival of ciliary neurones in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Philippe, J.M.; Renaud, F.; Desset, S.; Laurent, M.; Mallet, J.; Courtois, Y.; Edwards, J.B.
Biochem. Biophys. Res. Commun. (1992) 188:843-850
cloning of two different 5' untranslated exons of bovine acidic fibroblast growth factor by the single strand ligation to single-stranded cDNA methodology.
                                                                                                                                                                                                                          growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     growth factor A
                                                      cell growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a form
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 J. Protein Chem. (1987) 6:163-171
Primary structure and mitogenic and angiogenic activities brain-derived acidic fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hill, C.E.; Belford, D.A.; Godovac-Zimmermann, J.; Hendry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##molecule_type protein
##residues 11-26;28-50;53-110,'H',112,'NTY';134-155 ##label HIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##cross-references EMBL:X66446; NID:g411; PIDN:CAA47063.1; PID:g412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sasaki, H.; Hoshi, H.; Hong, Y.M.; Suzuki, T.; Kato, T.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                Thomas, K.A.; Gimenez-Gallego, G.; Rios-Candelore, M.; DiSalvo, J.
                                                                                                                                                                                                                          cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type protein
##residues 62-76,'x',78-86 ##label KUO
##note this sequence is an amino-terminal fragment of
designated as brain-derived growth factor B
                                                                                                                                                                                                                                                                            #authors Strydom, D.J.; Harper, J.W.; Lobb, R.R.
#journal Blochemistry (1986) 25:945-951
#title Amino acid sequence of bovine brain derived class heparin binding growth factor.
#cross-references MUID:86187766
                                                                                                                                                                             ##molecule_type protein
##residues 22-155 ##label BU3
##note this form was designated alpha endothelial
                                                    endothelial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##molecule_type protein
##molecule_type protein
##residues 22-30,'X',32-38 ##label KU2
##residues this form was designated brain-derived
           ##molecule_type protein
##residues 2-155 ##label BUR
##note this form was designated beta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type protein
##residues 16-155 ##label STR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16-155 ##label THO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1-18 ##label
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               *cross-references MUID:92164087
                                                                       factor
                                                                                                                                                                                                                                           factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##molecule_type mRNA
##residues 1-18
                                                                                                                                                                                                                                                         A24539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A61198
B25043
                                                                                                                                                                                                                                                                                                                                                                         A24539
                                                                                                                                                                                                                                                                                                                                                                                                                             A60884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A60884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               vivo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A61198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       I46024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        *cross-references
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##status
*accession
                                                                                                                                                                                                                                                                                                                                                                           #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       fjournal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
```

```
region flanked by Lys-Lys dipeptides) and a number of neuropeptides, including a gastrin-releasing peptide from the pig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Risau, W.; Gautschi-Sova, P.; Boehlen, P.
EMBO J. (1988) 7:959-962
Endothelial cell growth factors in embryonic and adult chick
brain are related to human acidic fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type mRNA
##residues 1-155 ##label SCH
##cross-references GB:S63263; NID:9234372; PIDN:AAB19629.1; PID:9234373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                           ##molecule_type protein
##residues
##residues

##experimental_source heart libroblast growth factors are the major
NT pe acidic and basic fibroblast growth factors are the major
endothelial-cell growth factors. Both are angiogenic agents in
vivo and are potent mitogens for a variety of mesodern-derived
cell types in vitro (although bFGF is 30-100 times more potent
than aFGF in stimulating the proliferation of normal diploid
cells). There are differences in the tissue distribution and
concentration of these two growth factors.

This protein binds heparin, although less strongly than does bFGF
NT There are some sequence similarities between residues 117-126 (a
                                                                 bovine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                79 FLAMDIDGLLYGSQIPNEECLFLERLEENHYNTYISKKHAEKHWFVGLKKNGRSKLGPRI 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 19 PLGNYKKPKLLYCSNGGYFLRILPDGTVDGTKDRSDQHIQLQLCAESIGEVYIKSTETGQ 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             acidic fibroblast growth factor - chicken
endothelial cell growth factor
#formal_name Gallus gallus #common_name chicken
03-Mar-1993 #sequence_revision 03-Mar-1993 #text_change
16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                        st growth factor from
the cardiac myocytes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Development (1991) 111:1143-1154
Differentiating and mature neurons express the fibroblast growth factor gene during chick ne
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 926; DB 1; Length 155
Pred. No. 1.17e-170;
7; Mismatches 5; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               22-30,'X',32-44,'X',46-48 ##label RIS #superfamily fibroblast growth factor growth factor
"Journal J. Biol. Chem. (1989) 264:17605-17612 #title Purification of acidic fibroblast grow heart and its localization in the ca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #type complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Schnuerch, H.; Risau, W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Note: remainder of annotations omitted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cross-references MUID:91347925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #cross-references MUID:88296438
                                                                                                                                                                            preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 51.1%;
Best Local Similarity 91.2%;
Matches 125; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              139 HFGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A60130; S02639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  development
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A60130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    502639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CLASSIFICATION
KEYWORDS
```

9

Matches

ð 염 ŏ g ò

SUMMARY

```
#authors David, G.; van der Schueren, B.; Marynen, P.; Cassiman, J.J.;
van den Berghe, H.
#journal J. Cell Biol. (1992) 118:961-969
#title Molecular cloning of amphiglycan, a novel integral membrane
heparan sulfate proteoglycan expressed by epithelial and
fibroblastic cells.
#cross-references MID:92363936
#accession $26695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 chondroitin sulfate proteoglycan; core protein; glycoprotein; heparan sulfate; transmembrane protein
  protein: Molecular cloning and
of the cDNA, and chromosomal localization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #domain signal sequence #status predicted #label SIG\
#product ryudocan #status predicted #label MAT\
#domain transmembrane #status predicted #label TMM\
#binding_site heparan sulfate (Ser) (covalent) #status
predicted
                                                                                                                                       #authors Kojima, T.; Shworak, N.W.; Rosenberg, R.D.
#journal J. Biol. Chem. (1992) 267:4870-4877
#title Molecular cloning and expression of two distinct cDNA-encoding heparan sulfate proteoglycan core proteins from a rat endothelial cell line.
#cross-references MUID:92165852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61 SGSGDLDDLEDSMIGPEVVHPLVPLDNHIPERAGSGSQVPTEPKKLEENEVIPKRISPVE 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 SGSGDLDDLEDSMIGPEVVHPLVPLDNHIPERAGSGSQVPTEPKKLEENEVIPKRISPVA 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##residues 1-202 ##label KOJ
##cross-references GB:M81786; NID:g206822; PID:g206823
##experimental_source endothelial cell line
##note sequence extracted from NCBI backbone (NCBIN:84028,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 MAPARLFALLLFFVGGVAESIRETEVIDPQDLLEGRYFSGALPDDEDVVGPGQESDDFEL 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #formal_name Rattus norvegicus #common_name Norway rat 04-Mar-1993 #sequence_revision 18-Nov-1994 #text_change 20-Mar-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    amphiglycan; heparan sulfate proteoglycan core protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #length 198 #molecular-weight 21641 #checksum 4522
                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##residues 1.11,'L',13-198 ##label DAV ##cross-references EMBL:X67016; NID:928679; PID:928680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 827; DB 2; Le
Pred. No. 8.96e-149;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #type complete
  Human ryudocan core characterization o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ryudocan precursor
                                                               #cross-references MUID:93176185
#accession JC1457
                                                                                                                                                                                                                                                                                                                                                                                                       preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 45.6%;
Best Local Similarity 98.3%;
Matches 119; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ryudocan
                                                                                                                                                                                                                                                                                                                                                                                                                               ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##molecule_type mRNA
                                                                                                                 ##molecule_type mRNA
                                                   of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A42410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #map_position 20q12
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         E 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121 N 121
                                                                                                                                                                                                                                                                                                                                                                                                            ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                *accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    146-170
39,61,63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              19-198
                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENETICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #journal Biochem. Biophys. Res. Commun. (1998) 246:182-191
#title Primary structure of ovine fibroblast growth factor-1 deduced
#cross-references WUID:98262939
                                                                                           ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sidues 1.155 ##label GRI
This protein is a potent mitogenic factor for NIH 3T3 fibroblasts
in the absence of heparin.
TION #superfamily fibroblast growth factor
#length 155 #molecular-weight 17557 #checksum 8890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Grieb, T.W.; Ring, M.; Brown, E.; Palmer, C.; Belle, N.;
Donjerkovic, D.; Chang, H.; Yun, J.; Subramanian, R.;
Forozan, F.; Guo, Y.; Vertes, A.; Winkles, J.A.; Burgess,
                                                                                                                                    72 KSTASGQYLAMDTNGLLYGSQLPGEECLFLERLEENHYNTYISKKHADKNWFYGLKKNGN 131
                                                                                                                                                                                                                                                                                 171 KSTETGQYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGS 230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19 PLGNYKKPKLLYCSNGGYFLRILPDGRVDGTKDRSDQHIQLQLYAESIGEVYIKSTETGQ 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  T.; Inazawa, J.; Takamatsu, J.; Rosenberg, R.D.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #formal_name Ovis sp. #common_name sheep
17-Jun-1998 #sequence_revision 10-Jul-1998 #text_change
07-May-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        amphiglycan; core protein
#formal_name Homo sapiens #common_name man
30-Sep-1993 #sequence_revision 30-Sep-1993 #text_change
17-Mar-1999 #sequence_revision 30-Sep-1993 #text_change
#molecular-weight 17322 #checksum 7617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Biochem. Biophys. Res. Commun. (1993) 190:814-822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 155;
                                         Length 155;
                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                         Score 926; DB 2; Le
Pred. No. 1.17e-170;
10; Mismatches 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 915; DB 2; Lour Pred. No. 3.20e-168; 9; Mismatches 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JW0055 #type complete
fiblobrast growth factor-1 - sheep
FGF-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #type complete
                                                                                                                                                                                                                                                                                                                             132 SKLGPRTHYGQKAILFLPLPVSAD 155
                                                                                                                                                                                                                                                                                                                                                        231 CKRGPRTHYGQKAILFLPLPLPVSSD 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity 89.8%;
Matches 123; Conservative
                                         ch 51.1%;
| Similarity 86.1%;
| 124; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HFGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JC1457; S26695
#length 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ryudocan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Satio,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Kojima,
                                         Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JC1457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #accession
```

#authors

COMMENT

SUMMARY

ACCESSIONS

ORGANISM

SULT TTRY TTLE

REFERENCE

ACCESSIONS REFERENCE #authors #journal

ORGANISM

RESULT

139

셤

ö g ò

ö

Gaps

ö

1; Indels

9

```
116 FLAMKEDGRLLALKCATEECFFFERLESNNYNTYRSRKYSD - WYVALKRTGQYKPGPKT 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##residues
                                                                                                                                                                                                               ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                               #accession
                                                                                                                                                          12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13
                                                                                                                                                                                                                                                                                                                                        #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    18-22
107-110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #authors
                                                                                                                                                                                                                                                                                                                                                                         #journal
                                                                                                                                                                                                                                                                                                   ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                          #title
                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUMMARY
                                                                                                                                                                                                                                                                  DATE
                                  ò
                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
 셤
                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
              This protein plays a role in the cytoskeletal organization in relation to the extracellular microenvironment. chondroitin sulfate proteoglycan; core protein; glycoprotein; heparan sulfate; transmembrane protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##cross-references EMBL:X56804; NID:g62855; PIDN:CAA40139.1; PID:g62856 FICATION #superfamily fibroblast growth factor #length 189 #molecular-weight 20312 #checksum 8538
                                                                                                    #domain signal sequence #status predicted #label SIG\
#product ryudocan core protein #status predicted #label
MAT\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #authors Borja, A.Z.; Meijers, C.; Zeller, R.
#journal Dev. Biol. (1993) 157:110-118
#title Expression of alternatively spliced bFGF first coding exons and antisense mRNAs during chicken embryogenesis.
#cross-references MUID:93246053
                                                                                                                                                                            #status
                                                                                                                                                                                                                                                                                                                                                                                                        the
                                                                                                                                                                                                                                                                                                                                                                                      61 D-FELSGSGDLDDTEEPRTFPEVISPLVPLDNHIPENAQPGIRVPSEPKELEENEVIPKR 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 56 PPGHFKDPKRLYCKNGGFFLRINPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVSANR 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 MAPVCLFAPLLLLLLGGFPVAPGESIRETEVIDPQDLLEGRYFSGALPDDEDAGGLEQDS 60
                                                                                                                                                                                                                                                                                                                                    sequence extracted from NCBI backbone (NCBIN:131000, NCBIP:131001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   basic fibroblast growth factor - chicken #formal_name chicken flower_loane Gallus gallus #common_name chicken 01-bec-1993 #sequence_revision 18-Nov-1994 #text_change 16-Jul-1999
                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      $23636 GOLINGTON, William H.; Ziv, T. Brotelopment (1990) 109:387-393 Fibroblast growth factor during mesoderm induction in early chick embryo.
                                                                                                                                                      #domain transmembrane #status predicted #label
#binding_site heparan sulfate (Ser) (covalent)
                                                                                                                                                                                           predicted
#length 202 #molecular-weight 21962 #checksum 264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;;
;;
                                                                                                                                                                                                                                                                                   ;
9
                                                                                                                                                                                                                                            Score 546; DB 2; Length 202; Pred. No. 1.28e-87;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 2; Length 189;
                                                                                                                                                                                                                                                                                 13; Mismatches 15; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                23; Mismatches 37; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pred. No. 1.47e-83;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 527;
                                                                                                                                                                                                                                              30.1%; Score 546;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #type complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   95-128 ##label MIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##status preliminary
##molecule_type nucleic acid
##residues 1-189 ##label BOR
NCBIP:84029)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##experimental_source embryo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #cross-references MUID:90382254
#accession S23636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            29.1%; silarity 54.4%; E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    preliminary
                                                                                                                                                                                                                                                               larity 72.4%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A48834; S23636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##molecule_type DNA
##residues 95-1
                                                                                                                                                                                                                                                               Local Similarity
nes 89; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A48834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity
Matches 74; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A48834
                                                                                                                                                                                                                                                                                                                                                                                                                                                          120 VPS 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             116 ISP 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##status
                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
#authors
#journal
                                                                                                                                                      150-174
44,65,67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              title
                                                                                                                     24-202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                   KEYWORDS
                COMMENT
                                                                                    FEATURE
                                                                                                                                                                                                           SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ENTRY
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   දු
                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
```

```
#journal Science (1986) 233:545-548
#title Nuclectide sequence of a bovine clone encoding the anglogenic protein, basic fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                   Simpson, R.J.; Moritz, R.L.; Lloyd, C.J.; Fabri, L.J.; Nice, E.C.; Rubira, M.R.; Burgess, A.W. C.C.; Rubira, D.Z4:128-132 Primary structure of ovine pituitary basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Abraham, J.A.; Mergia, A.; Whang, J.L.; Tumolo, A.; Friedman,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##m0lecule_type mRNA
##residues 3-157 ##label ABR
##cross-references GB:M13440; NID:g163049; PIDN:AAA30518.1; PID:g163050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             basic fibroblast growth factor precursor - bovine (fragment) bFGF; kidney-derived growth factor; prostatropin #formal_name Bos primigenius taurus #common_name cattle 13.Aug-1986 #sequence_revision 02-Jun-1995 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ĥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            237
73 YLAMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGPKT 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13 PPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANR 72
                                                                                                                                                                                                                                                                                           #common_name domestic sheep
10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change
10-Sep-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A24663; A32878; A33784; A61550; A61551; A60310; A61094; A01386; A60316; A22054; A24819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #checksum 3560
                                                                                                                                                                                                                                                                                        #formal_name Ovis orientalis aries, Ovis ammon aries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #region heparin binding #status predicted\
#region heparin binding #status predicted
#length 146 #molecular-weight 16434 #checksum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 146;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 521; DB 1; Length 146;
Pred. No. 2.80e-82;
22; Mismatches 37; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1-146 ##label SIM #superfamily fibroblast growth factor growth factor; heparin binding; mitogen
                                                                                                                                                                                                                 S00185 #type complete
basic fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #type fragment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #cross-references MUID:88055577
#accession S00185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 28.7%;
Best Local Similarity 55.1%;
Matches 75; Conservative
                                                                                             238 HYGQKAILFLPLPVSS 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              131 GPGQKAILFLPMSAKS 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       174 GPGQKAILFLPMSAKS 189
                                                                                                                                                                                                                                                                 prostatropin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A24663
                                                                                                                                                                                                                                                                                                                                                                                                               500185
```

##experimental\_source pituitary gland

```
##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cells).
                                                                                                                                                                                                                                                                                                                              ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     29-33,118-121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #journal
                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 16-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             23-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        27-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURE
1-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gospodarowicz, D.; Baird, A.; Cheng, J.; Lui, G.M.; Esch, F.;
                                                                                                                                                                                                                                                 Milner, P.G.; Li, Y.S.; Hoffman, R.M.; Kodner, C.M.; Siegel, N.R.; Deuel, T.F.
Biochem. Biophys. Res. Commun. (1989) 165:1096-1103
A novel 17 kD heparin-binding growth factor (HBGF-8) in bovine uterus: purification and N-terminal amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #authors Bertolini, J.; Hearn, M.T.W.
#journal Mol. Cell. Endocrinol. (1987) 51:187-199
#title Isolation, characterisation and tissue localisation of an V-terminal-truncated variant of fibroblast growth factor.
#cross-references MUD:87247652
#accession A61550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #authors Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R.
#journal Mol. Cell. Endocrinol. (1987) 49:189-194
#title Isolation and partial characterization of basic fibroblast
growth factor from bovine testis.
#cross-references MUID:87162856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Regul. Pept. (1986) 16:135-145
Purification and partial characterization of a mitogenic factor from bovine liver: structural homology with basic
A90924
Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Fiddes,
                                                              #journal Cold Spring Harb. Symp. Quant. Biol. (1986) 51:657-668
#title Human basic fibroblast growth factor: nucleotide sequence,
genomic organization, and expression in mammalian cells.
#cross_references_MUID:87217066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #journal Endocrinology (1986) 118:82-90
#title Isolation of fibroblast growth factor from bovine adrenal gland: physicochemical and biological characterization.
#cross-references WUID:86081530
#accession A61094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         this form appears to be identical to the renal form
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ueno, N.; Baird, A.; Esch, F.; Shimasaki, S.; Ling, N.; Guillemin, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        the amino end of this form was blocked; the peptide composition matched what was thought to be the signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                            1-14 ##label MIL
demonstration of a possible alternative initiator
splice junction
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##molecule_type protein
##residues 23-35,'x',37-42 ##label UEN
##experimental_source liver
NCE A24819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##molecule_type protein
##residues 27-35,'X',37-41 ##label UE3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  fibroblast growth factor #cross-references MUID:87119165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type protein
##residues 16-35 ##label BER
                                                                                                                                                                            ##molecule_type mRNA
##residues 3-157 ##label AB2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##experimental_source_testes
                                                                                                                                                                                                                                                                                                                                                                                       #cross-references MuID:90121211
#accession A33784
                                                                                                                                                                                                                                                                                                                                                                                                               #accession A33784
##molecule_type protein
##residues 1-14 ##]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bohlen, P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          seguence
                                                                                                                                                                                                                                                                                                                                                                           sednence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A60310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A61551
                                                                                                                                                                                                                              A33784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A61551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #accession
                                                                                                                                                                *accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##note
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##note
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #contents
                          #authors
                                                                                                                                                                                                                                                        #authors
                                                                                                                                                                                                                                                                                                   #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #note
```

```
#product basic fibroblast growth factor, uterine form
#status predicted #label MATI\
#product basic fibroblast growth factor, pituitary gamma
form #status experimental #label MAT2\
fproduct basic fibroblast growth factor, pituitary alpha
form #status experimental #label MAT3\
fproduct basic fibroblast growth factor, pituitary short
form #status predicted #label MAT4\
#product basic fibroblast growth factor, hepatic form
#status predicted #label MAT4\
#product basic fibroblast growth factor, nepatic form
#status experimental #label MAT4\
#product basic fibroblast growth factor, renal form
#status experimental #label MAT6\
#status #
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##experimental_source pituitary gland
FERENCE A60316
#authors Baird, A.; Esch, F.; Boehlen, P.; Ling, N.; Gospodarowicz, D.
#authors Regul. Pept. (1985) 12:201-213
#title Isolation and partial characterization of an endothelial cell
growth factor from the bovine kidney: homology with basic
#cross-references MUID:86095426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bohlen, P.; Baird, A.; Esch, F.; Ling, N.; Gospodarowicz, D. Proc. Natl. Acad. Sci. U.S.A. (1984) 81:5364-5368
Isolation and partial molecular characterization of pituitary
##residues 12-25,27-35,'X',37-40 ##label GOS ##experimental_source adrenal gland #ERERENCE A01386 #authors Esch, F.; Baird, A.; Ling, N.; Ueno, N.; Hill, F.; Denoroy, L.; Klepper, R.; Gospodarowicz, D.; Bohlen, P.; Guillemin,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #region heparin binding #status predicted\
#modified_site blocked amino end (Ala) (in mature form
   pituitary gamma) (probably acetylated) #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##nolecule_type protein

##residues_12-26 ##label BOH

##residues_12-26 ##label BOH

NT The acidic and basic fibroblast growth factors are the major
endothelial-cell growth factors. Both are angiogenic agents in
vivo and are potent mitogens for a variety of mesoderm-derived

cell types in vitro (although bFGF is 30-100 times more potent
than aFGF in stimulating the proliferation of normal diploid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This protein binds heparin more strongly than does aFGF.

FION #superfamily fibroblast growth factor
alternative splicing; angiogenesis; growth factor; heparin
binding; mitogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    24 PPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANR 83
                                                                                                                                                                                                                                                                                                                                                   Proc. Natl. Acad. Sci. U.S.A. (1985) 82:6507-6511
Primary structure of bovine pituitary basic fibroblast
factor (FGF) and comparison with the amino-terminal
sequence of bovine brain acidic FMF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 521; DB 1; Length 157; Pred. No. 2.80e-82; 22; Mismatches 37; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type protein
##residues 27-35,'X',37-43 ##label BAI
##experimental_source kidney
SNCE A22054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #length 157 #checksum 1115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         fibroblast growth factor across-references MUID:84298139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12-157 ##label ESC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #cross-references MUID:86016731
#accession A01386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 28.7%;
Best Local Similarity 55.1%;
Matches 75; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##molecule_type protein
```

9

```
not compared with conceptual translation
                       ##molecule_type DNA
##residues 1-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##status
                                                                                                                                                                                                                                                                                                                                                                                                                            #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #authors
#journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
#authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    journal
                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Friedman, J.; Gospodarowicz, D.; Fiddes, J.C.
EMBO J. (1986) 5:2523-2528
Human basic fibroblast growth factor: nucleotide sequence and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##molecule_type mRNA
##residues 56-210 ##label KUR
##cross-references GB:M27968; NID:g182562; PIDN:AAA52448.1; PID:g182563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     as
                                                                                                                                                                                                                                             basic fibroblast growth factor precursor, 22.5K form - human bFGF; fibroblast growth factor 2; prostatic growth factor;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##molecule_type mRNA
##residues 1-210 ##label PRA
##cross-references GB:J04513; NID:g183083; PIDN:AAA52531.1; PID:g459811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #authors Prats, H.; Kaghad, M.; Prats, A.C.; Klagsbrun, M.; Lelias, J.M.; Liauzun, P.; Chalon, P.; Tauber, J.P.; Amalric, F.; Smith, J.A.; Caput, D. Proc. Natl. Acad. Sci. U.S.A. (1989) 86:1836-1840 #title High molecular mass forms of basic fibroblast growth factor are initiated by alternative CUG codons.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              as Ala
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Fiddes,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #journal Cold Spring Harb. Symp. Quant. Biol. (1986) 51:657-668
#fitle Human basic fibroblast growth factor: nucleotide sequence,
genomic organization, and expression in mammalian cells.
#cross_references MUID:87217066
#accession B32878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Shibata, F.; Baird, A.; Florkiewicz, R.Z.
Growth Factors (1991) 4:277-287
Functional characterization of the human basic fibroblast
84 YLAMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGPKT 141
                         A32398; A61537; A26642; B32878; S00297; A54316; B54316; A33624; A25824; B24243; B24301; S42242; B55784; I52267;
                                                                                                                                                                                                                                                                                                                                  #formal_name Homo sapiens #common_name man
31-Jul-1989 #sequence_revision 31-Dec-1993 #text_change
16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #authors Kurokawa, T.; Sasada, R.; Iwane, M.; Igarashi, K.
#journal FEBS Lett. (1987) 213:189-194
#title Cloning and expression of cDNA encoding human basic
flubcolast growth factor.
#cross-references MUID:87162468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1-114 ##label SHI
authors translated the codon GGA for residue
                                                                                                                                                                                                                                                                                                              basic fibroblast growth factor, 18K form
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    growth factor gene promoter.
                                                                                                                                                                                                                        complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             genomic organization ecross-references MUID:87053817
                                                                                                                                                                                                                                                                                           prostatropin
                                                                                                                 238 HYGOKAILFLPLPVSS 253
                                                                                     142 GPGOKAILFLPMSAKS 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A26642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A32398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A26642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##residues
                                                                                                                                                                                                                                                                  ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       *accession
                                                                                                                                                                                                    14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #journal
                                                                                                                                                                                                                                                                                                                                                                                                     CESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                  ORGANISM
DATE
                                                                                                                                                                                                                                                                                                              CONTAINS
                                                                                                                                                                                                    RESULT
硆
                                           ò
                                                                                     g
```

```
Feige, J.J.; Bradley, J.D.; Fryburg, K.; Farris, J.; Cousens, L.C.; Barr, P.J.; Balrd, A.
J. Cell Biol. (1989) 109:3105-3114
Differential effects of heparin, fibronectin, and laminin on the phosphorylation of basic fibroblast growth factor by protein kinase C and the catalytic subunit of protein
                                                  for residue 108 as
                                                                                                    #authors A54316 Harbhashi, S. Hauthors Shimoyama, Y.; Gotoh, M.; Ino, Y.; Sakamoto, M.; Kato, K.; Hirohashi, S. Hirohashi, S. Hirohashi, S. Hirohashi, S. Hirohashi, S. Hirle Characterization of high-molecular-mass forms of basic fibroblast growth factor produced by hepatocellular carcinoma cells: possible involvement of basic fibroblast growth factor in hepatocarcinogenesis. #cross-references MuID:92091228 #accession A54316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #authors Story, M.T.; Esch, F.; Shimasaki, S.; Sasse, J.; Jacobs, S.C.; Lawson, R.K.
#journal Biochem Biophys. Res. Commun. (1987) 142:702-709
#title Amino-terminal sequence of a large form of basic fibroblast growth factor isolated from human benign prostatic hyperplastic tissue.
#cross-references MUD:87156686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A. Blochem. Blophys. Res. Commun. (1986) 135:541-548

Human brain-derived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitogenic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sommer, A.; Brewer, M.T.; Thompson, R.C.; Moscatelll, D.; Presta, M.; Rifkin, D.B.
Biochem. Biophys. Res. Commun. (1987) 144:543-550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##molecule_type protein
##residues 'xxx',19,'X',21-29 ##label SH2
##note sequence extracted from NCBI backbone (NCBIP:71594)
ENCE A33624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gautschi, P.; Frater-Schroder, M.; Bohlen, P. FEBS Lett. (1986) 204:203-207 Partial molecular characterization of endothelial cell mitogens from human brain: acidic and basic fibroblast
                                                                                                                                                                                                                                                                                                                                                                                                               ##molecule_type protein
##residues /xx',86-88,'x',90-91,'x',93-95 ##label SH3
##experimental_source C-Li21 hepatocellular carcinoma cell line
##note sequence extracted from NCBI backbone (NCBIP:71595)
                                                     codon GAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##molecule_type protein
##residues 65-102,'X',104-105 ##label GIM
                                                  authors translated the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##molecule_type protein
##residues 57-210 ##label FEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type protein
##residues 57-77 ##label STO
1-155 ##label AB2
the authors +ro--'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##experimental_source prostate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                growth factors.
#cross-references MUID:86275260
#accession B24301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #cross-references MUID:90078343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #cross-references MUID:86186784
#accession B24243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##experimental_source brain
NCE A91364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         activities
                                                                                 _{\rm G1y}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       kinase A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B54316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A33624
```

US-09-121-017B-21.rpr

```
81 YLAMKEDGRLLASKCVTEECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGSKT 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21 PPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANR 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Search completed: Tue Aug 29 15:59:50 2000 Job time: 60 secs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 139 GPGQKAILFLPMSAKS 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          238 HYGOKAILFLPLPVSS 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CLASSIFICATION
SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                        #journal
#title
                                                                                                                                                                                                                                                                                                                                                            #authors
                                                                                                                                                                                                                                                                                                                ACCESSIONS
                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                 RESULT
                                                                                                                                                                                                        ENTRY
                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                         DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ద
                                                                  셤
                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   *superfamily fibroblast growth factor alternative initiators; angiogenesis; growth factor; heparin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #journal Blochem Biophys. Res. Commun. (1992) 187:1227-1231
#title Reverse transcription with nested polymerase chain reaction shows expression of basic fibroblast growth factor transcripts in human granulosa and cumulus cells from in "vitro fertilisation patients."
#cross-references MID:93038590
#accession 152267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #authors Patry, V.; Bugler, B.; Amalric, F.; Prome, J.C.; Frats, H. #journal FEBS Lett. (1994) 349:23-28
#title Purification and characterization of the 210-amino acid reconsarieferences MUID:94320639
                                                                                                                                                                                                                      Pantoliano, M.W.; Horlick, R.A.; Springer, B.A.; Van Dyk, D.E.; Tobery, T.; Wetmore, D.R.; Lear, J.D.; Nahapetian, A.T.; Bradley, J.D.; Sisk, W.P. Biochemistry (1994) 33:10229-10248 Miltivalent ligand-receptor binding interactions in the Milroblast growth factor system produce a cooperative growth factor and heparin mechanism for receptor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Watson, R.; Anthony, F.; Pickett, M.; Lambden, P.; Masson,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        77 PPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANR 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    118 PVANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQ 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             137 YLAMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYT--SWYVALKRTGQYKLGSKT 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #product basic fibroblast growth factor, 22.5K form
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2; Gaps
#checksum 3610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    recombinant gene expressed in Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #status predicted #label MA2\
#product basic fibroblast growth factor, 18K
#status predicted #label MAT\
                                                                                     ##status preliminary
##molecule_type mRNA
##residues 54-210 ##label SOM
##cross-references EMBL:M17599; NID:9183086; PIDN:AAA52534.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #region heparin binding #status predicted\
#region heparin binding #status predicted
#length 210 #molecular-weight 22623 #checksum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2; Length 210;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 514; DB 2; Length 210
Pred. No. 8.68e-81;
23; Mismatches 37; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ane GDB:FGF2; FGFB
##cross-references GDB:119910; OMIM:134920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             39-53;65-88 ##label PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##experimental_source granulosa cells
NCE S46253
                                                                                                                                                                                                                                                                                                                                                                                                                                            ##molecule_type protein
##residues 54-71 ##label PAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 binding; mitogen
                                                                                                                                                                                                                                                                                                                                                                                                     #cross-references MUID:94347757
#accession B55784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ouery Match 28.4%;
Best Local Similarity 54.4%;
Matches 74; Conservative
                                                                                                                                                                                                                                                                                                                                                                                   dimerization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #map_position 4q25-4q27
                                                                  542242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             152267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S46253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##note
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #authors
                                                                                                                                                                                                                                                                                             #journal
                                                                                                                                                                                                                             #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             82-86
171-174
                                                                                                                                                                                                                                                                                                                #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 65-210
                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURE
1-210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
```

```
members and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##cross-references GB:M30644; NID:q193296; PIDN:AAA37621.1; PID:g309239
FICATION #superfamily fibroblast growth factor
X #length 154 #molecular-weight 17153 #checksum 2906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ij
                                                                                                                                                                                                                                                                                                                                      Hebert, J.M.; Basilico, C.; Goldfarb, M.; Haub, O.; Martin
basic fibroblast growth factor - mouse #type complete #formal_name Mus musculus #common_name house mouse 17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change 16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                           Dev. Biol. (1990) 138:454-463
Isolation of cDNAs encoding four mouse FGF family memb
characterization of their expression patterns during
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               23; Mismatches 37; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pred. No. 1.42e-80;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 513;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1-154 ##label HEB
                                                                                                                                                                                                                                                                                                                                                                                                                                                            #cross-references MUID:90201563
#accession C37360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##molecule_type mRNA
##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 28.3%;
Best Local Similarity 54.4%;
Matches 74; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                               embryogenesis
                                                             195 GPGQKAILFLPMSAKS 210
                                                                                       C37360
A37360
                                                                                                                                                                                                                                                                                                                                                            G.R.
```

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

MPsrch\_pp protein - protein database search, using Smith-Waterman algorithm

Tue Aug 29 15:56:48 2000; MasPar time 9.39 Seconds 838.068 Million cell updates/sec : uo

bular output not generated. Title: Description: Perfect Score:

>US-09-121-017B-21 -(1-254)--from=US09121-017B:pep 1813 I MAPARLFALLLFFVGGVAES......PRTHYGQKAILFLPLPVSSD 254 Sequence:

PAM 150 Gap 11 Scoring table:

85661 seqs, 30989116 residues Searched:

Post-processing: Minimum Match 0% Listing first 45 summaries

swiss-prot38 1:swissprot Database:

Mean 46.888; Variance 77.510; scale 0.605 Statistics:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

### SUMMARIES

Pred. No.	3.56e-208	6.45e-205	3.64e-204	2.08e-200	2.10e-192	2.10e-192	9.76e-168	7.79e-99	2.91e-94	8.03e-93	8.03e-93	3.83e-91	6.65e-91	6.65e-91	5.48e-89	1.65e-88	2.33e-86	7.01e-81	6.73e-55	1.32e-52	1.32e-52	1.32e-52	8.09e-48
Description	HEPARIN-BINDING GROWTH	SYNDECAN-4 PRECURSOR (	SYNDECAN-4 PRECURSOR (	HEPARIN-BINDING GROWTH	SYNDECAN-4 PRECURSOR (	HEPARIN-BINDING GROWTH	HEPARIN-BINDING GROWTH	HEPARIN-BINDING GROWTH	GLIA-ACTIVATING FACTOR	GLIA-ACTIVATING FACTOR	GLIA-ACTIVATING FACTOR	GLIA-ACTIVATING FACTOR	FIBROBLAST GROWTH FACT										
ID	FGF1_HUMAN	FGF1_MOUSE	FGF1_MESAU	FGF1_PIG	FGF1_BOVIN	FGF1_CHICK	SDC4_HUMAN	SDC4_RAT	FGF2_CHICK	FGF2_SHEEP	FGF2_BOVIN	FGF2_HUMAN	FGF2_MOUSE	FGF2_RAT	SDC4_MOUSE	FGF2_MONDO	FGF2_XENLA	FGF2_RABIT	FGF9_XENLA	FGF9_RAT	FGF9_HUMAN	FGF9_MOUSE	FGFG_HUMAN
DB	; -	-		~	Н	m	ч	Н	Н	-	Н	Н	Ч	Н	Н	-	Н	٦	-	П	Н	٦	-
Length	155	. 155	155	152	155	155	198	202	158	155	155	155	154	154	198	156	155	137	209	208	208	208	207
% Query Match	54.6	53.8	53.7	52.8	51.1	51.1	45.6	30.1	29.1	28.7	28.7	28.4	28.3	28.3	27.9	27.7	27.2	26.0	19.9	19.3	19.3	19.3	18.1
Score	686	916	973	928	926	926	827	546	527	521	521	514	513	513	202	503	464	471	360	350	350	350	329
Posult No.	2	7	m	4	S	9	7	<b>ω</b>	O	10	11	12	13	14	15	16	17	18	19	20	21	22	23

	8.90e-34 4.02e-33 8.09e-32 2.19e-31
GROWTH TE GROWT TE GROWTH	FIBROBLAST GROWTH FACT FIBROBLAST GROWTH FACT FIBROBLAST GROWTH FACT FIBROBLAST GROWTH FACT FIBROBLAST GROWTH FACT
FGFG_RAT FGF7_SHEEP FGF7_MUMAN FGF7_MUMAN FGFA_RAT FGF8_RAT FGF8_RAT FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHICK FGF8_CHI	FGF3_BRARE FGFB_HUMAN FGFB_MOUSE FGF4_HUMAN FGFC_HUMAN
11997 1444 1444 1644 1644 1644 1644 1644 164	256 225 225 243 243
0.000000000000000000000000000000000000	14.7 14.5 14.2 14.1
20000000000000000000000000000000000000	266 257 255 255
4 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	4444 12648

# ALIGNMENTS

RESULT	1 mm manner of the manner of t
ָר ד	
Ą	02;
DŢ	(Rel.
DŢ	
DI	(Rel. 38, Last
DE	ING GROWTH FACT
DE	
DE	BETA).
S	FGF1 OR FGFA.
SO	Homo sapiens (Human).
8	Eukarvota: Metazoa: Chordata: Cranlata: Vertebrata: Euteleostomi
S	
200	1000
000	CENTENCE EDOM 11 A
2 2	MODIOUS CONTRACTOR
<b>2</b> ;	
¥	Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.W.,
RA	O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;
RŢ	"Human endothelial cell growth factor: cloning, nucleotide sequence,
RT	
RL	Science 233:54%-545(1986)
N	
0	I NOGE GOVERNOR
¥ 1	SECUENCE FROM N.A.
RC C	TISSUE-BRAIN STEM;
RX	MEDLINE; 89343957.
RA	Wang W.P., Lehtoma K., Varban M.L., Krishpan I., Chiu I.M.
E	"Cloning of the gene coding for himan class I howarin-hinding arouth
: £	The state of the s
X i	lactor and its expression in letal tissues.";
RL	MOL. CELL. Biol. 9:2387-2395(1989).
RN	[3]
RP	SECUENCE FROM N.A.
E S	TISSHEEBBAIN STEM.
2 2	ADDITION OF THE PROPERTY OF TH
2 1	1
RA	Lehtoma K.;
RT	"Alternative splicing generates two forms of mRNA coding for human
RŢ	heparin-binding growth factor 1.";
RL	Oncodene 5:755-762(1990)
N	[4]
2 2	s is seen a constitution of
አ	
X	MEDLINE; 90073637.
RA	Mergia A., Tischer E., Graves D., Tumolo A., Miller J.,
RA	Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;
E	"Structural analysis of the sone for himan acidic fibroblast grouth
E &	
: :	14401011
Y.	Blochem: Blophys: Res. Commun. 164:1121-1129(1989).
RN	[5]
RP	SEQUENCE FROM N.A.

acidic fibroblast

```
16
  SOTETTT WERE THE TRANSPORT OF THE TRANSPORT OF THE TEST OF THE 
                                                                                                                                                                                                                                                                                                                      Zhao X.M., Yeoh T.K., Hiebert M., Frist W.H., Miller G.G.; The expression of acidic fibroblast growth factor (heparin-binding growth factor-1) and cytokine genes in human cardiac allografts and T cells.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gautschi P., Frater-Schroeder M., Boehlen P.;
"Partial molecular characterization of endothelial cell mitogens from
human brain: acidic and basic fibroblast growth factors.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE; 86296647.

Harper J.W., Strydom D.J., Lobb R.R.;

"Human class 1 heparin-binding growth factor: structure and homology to bovine acidic brain fibroblast growth factor.";

Biochemistry 25:4097-4103(1986).
                 Wang W.P., Quick D., Balcerzak S.P., Needleman S.W., Chiu I.M.; "Clooning and sequence analysis of the human acidic fibroblast growth factor gene and its preservation in leukemia patients."; Oncogene 6:1521-1529(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Blaber M., Disalvo J., Thomas K.A.;
"X-ray crystal structure of human acidic fibroblast growth factor.";
Biochemistry 35:2086-2094(1996).
                                                                                                                                                                                                             "An acidic fibroblast growth factor protein generated by alternate splicing acts like an antagonist."; J. Exp. Med. 175:1073-1080(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE; 87048871.
Gautschi-Sova P., Mueller T., Boehlen P.;
"Amino acid sequence of human acidic fibroblast growth factor.";
Blochem. Blophys. Res. Commun. 140:874-880(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         factors:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Crumley G., Dionne C.A., Jaye M.;
"The gene for human acidic fibroblast growth factor encodes two upstream exons alternatively spliced to the first coding exon.";
Blochem. Blophys. Res. Commun. 171:7-13(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.; "The complete amino acid sequence of human brain-derived acidic fibroblast growth factor."; Biochem. Biophys. Res. Commun. 138:611-617(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    [15]
STRUCTURE BY NMR OF 24-155.
MEDLINE, 94358885.
Pineda-Lucena A., Jimenez M.A., Nieto J.L., Santoro J., Rico M. Gimenez-Gallego G.;
                                                                                                                        SEQUENCE FROM N.A.
MEDLINE; 92202857.
Li Y.L., Kha H., Golden J.A., Migchielsen A.A.J., Goetzl E.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.;
"Human brain-derived acidic and basic fibroblast growth factor
amino terminal sequences and specific mitogenic activities.";
Biochem. Biophys. Res. Commun. 135:541-548(1986)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                X-RAY CRYSTALLOGRAPHY (2.0 ANGSTROMS)
                                                                                                                                                                                                                                                                                                                                                                                                                               ransplantation 56:1177-1182(1993)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEBS Lett. 204:203-207(1986)
                                                                                                                                                                                                                                                                                                  OF 1-154 FROM N.A. 94069734.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE OF 1-40 FROM N.A.
92019819.
., Quick D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE OF 16-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE OF 16-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE OF 16-155.
MEDLINE; 86295741.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               86186784.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      96194129.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE; 90365758.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  86275260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE OF
MEDLINE: 861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE OF
                                                                                                                                                                                           Turck E.J.;
                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE;
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding; Acetylation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                -1- SUBUNIT: MONOMER.
-1- MISCELLANDOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY THAN DOES BFGF.
-1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                    Pineda-Lucena A., Jimenez M.A., Lozano R.M., Nieto J.L., Santoro J., Rico M., Gimenez-Gallego G.; "Three-dimensional structure of acidic fibroblast growth factor in Solution: effects of binding to a heparin functional analog."; J. Mol. Biol. 264:162-178(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
F586E8BFB09F1580 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HEPARIN-BINDING GROWTH ACETYLATION.
"1H-NWR assignment and solution structure of human growth factor activated by inositol hexasulfate."; J. Mol. Biol. 242:81-98(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         M30492, AAA52446.1; -...
M30491, AAA52446.1; JOINED.
M30491, AAA51672.1; -...
M60515; AAA51672.1; -...
M60516; AAA51673.1; -...
M23087; AAA52638.1; -...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       M23086; AAA52638.1; JOINED.
S67291; AAB29057.1; -.
X65778; CAA46661.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15
155 HE
2 AC
28 HE
116 HE
17460 MW;
                                                                                                                                                                                                                                      STRUCTURE BY NMR OF 25-155.
                                                                                OF 24-155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; M13361; AAA79245.1;
EMBL; X51943; CAA36206.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2AFG; 15-OCT-95.
1AXM; 22-APR-98.
2AXM; 22-APR-98.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11-NOV-98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A24820.
A26386.
A33665.
S18217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A24301.
A24662.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FGF;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1:
16
2
24
113:
155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A24243
                                                                                                  97107535.
                                                                                                                                                                                                                                                        98387896
                                                                                STRUCTURE BY NMR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A24820; A26386; A33665; A33665; A33655; A38217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A23553;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A24301;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A24243;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A24662;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3D-structure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1RML;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MOD_RES
BINDING
BINDING
SEQUENCE
                                                                                                                                                                                                                                                        MEDLINE;
                                                                                                MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL;
EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL;
```

 $\sim$ 

US-09-121-017B-21.rsp

```
entities requires a license agreement (See http://www.isb-sib.ch/announce/
or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-FEB-1994 (Rel. 28, Created)
01-FEB-1994 (Rel. 28, Last sequence update)
15-JUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -!- SUBUNIT: MONOMER.
-!- MISCELLANECUS: THIS PROTEIN BINDS HEPARIN, ALTHCUGH LESS STRONGLY
THAN DOES BFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               72 KGTETGQYLAMDTEGLLYGSQTPNEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGS 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hall J.A., Harris M.A., Malark M., Mansson P.E., Zhou H., Harris S.E. "Characterization of the hamster DDT-1 cell aFGF/HGBF-1 gene and CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -i- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY. PIR; A60721; A60721. HSSP: P05230; 2AXM. PFRM: PFRM: PFRM: PRO0167; FGF: 1. PRINTS; PR00262; ILLHBGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12 LTERFNLPLGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYI 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostoml,
Mammalia, Eutheria, Rodentia, Sciurognathi, Muridae, Cricetinae,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               and its modulation by steroids.";
J. Cell. Biochem. 43:17-26(1990).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIGGENIC
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GROWTH FACTOR 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                   PRINTS; PR00262; IL1HBGF.
PRINTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        24 28 HEPARIN (POTENTIAL).
113 116 HEPARIN (POTENTIAL).
155 AA; 17418 MW; 8880E4FF0FBA4161 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 976; DB 1; L
Pred. No. 6.45e-205;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HEPARIN-BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         155 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mesocricetus auratus (Golden hamster).
                                                                                                                           EMBL; M30641; AAA37618.1; EMBL; U3645; AAC52969.1; ...
EMBL; U36457; AAC52969.1; JOINED. EMBL; U36458; AAC52969.1; JOINED. EMBL; U67610; AAC52967.1; ...
PIR; D37360; D37360. HSSP; POST300; AGSP; POST300; D37360. HSSP; POST300; AGSP; POST300; AGSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    132 CKRGPRTHYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       231 CKRGPRTHYGQKAILFLPLPVSSD 254
                                                                                                  EMBL; X14232; CAA32448.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ch 53.8%;
il Similarity 91.7%;
132; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               155
155
116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GROWTH FACTOR) (AFGF). FGF1 OR FGF-1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A. MEDLINE; 90270291.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        15
24
113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mesocricetus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LT 3
FGF1_MESAU
P34004;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESCIENT OF THE SECOND OF THE 
         g
G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions along as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         e are no restrictions on its sits content is in no way Usage by and for commercial
                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGENTS
IN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-JUL-1989 (Rel. 11, Last sequence update)
15-JUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDILINE; 90201563.
Hebert J.M., Basilico C., Goldfarb M., Haub O., Martin G.R.;
"Isolation of cDNAs encoding four mouse FGF family members and
characterization of their expression patterns during embryogenesis.";
Dev. Biol. 138:454-463(1990).
                                                                                                                                                                                                                                                 YLAMDIDGLLYGSQIPNEECLFLERLEENHYNIYISKKHAEKNWFVGLKKNGSCKRGPRI 138
                                                                                                                                                                                                                                                                             178 YLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRT 237
                                                                                                                                                        -! - SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                        PPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQ 78
                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "Characterization of the 1B promoter of fibroblast growth factor 1 and its expression in the adult and developing mouse brain.";
J. BAOL. Chem. 271:30263-30271(1996).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGE IN VITRO. THE BEPOTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mus musculus (Mouse), and Rattus norvegicus (Rat).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDIINE; 89240051.
Goodrich S., Yan G.C., Bahrenburg K., Mansson P.E.;
"The nucleotide sequence of rat heparin binding growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SPECIES-MOUSE; STRAIN-BALB/C;
MEDLINE; 97094746.
Alam K.Y., Frostholm A., Hackshaw K.V., Evans J.E., Rotter A.,
Chlu I.M.;
         Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SPECIES-MOUSE;
MEDLINE; 97128312.
Madial F., Hackshaw K.V., Chiu I.M.;
"Cloning and characterization of the mouse Fgf-1 gene.";
Gene 179:231-236(1996).
   Score 989; DB 1; LA
Pred. No. 3.56e-208;
1; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           155 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Nucleic Acids Res. 17:2867-2867(1989)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-JUL-1989 (Rel. 11, Created)
ch 54.6%;
1 Similarity 98.5%;
135; Conservative
                                                                                                                                                                                                                                                                                                                                                                      HYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                      HYGQKAILFLPLPVSSD 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FGF1 OR FGF-1 OR FGFA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUBUNIT: MONOMER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GROWTH FACTOR) (AFGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LT 2
FGF1_MOUSE
P10935;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SPECIES-RAT
      Query Match
Best Local 9
                                                                                                                                                                                                                                                                                                                                                                                                                                238
                                                                                                                           19
                                                                                                                                                                                                                                              79
                                                                                                                                                                                                                                                                                                                                                                      139
                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                ò
```

AGENTS

ä

Gaps

```
FGF1_BOVIN
P03968;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mammalia;
                                                                                                                                                                                                                                                               NON_TER
SEQUENCE
                                                                                                                                                                                                                    CONFLICT
                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                         BINDING
                                                                                                                                                                                                  BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Halley
                                                                                                                                   CHAIN
                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
    硆
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TD DDT TD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the Burpapan Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eur. J. Biochem. 181:67-73(1989).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIGGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (2)
SEQUENCE OF 22-41.
MEDILINE; 89231704.
Quinkler W., Maasberg M., Bernotat-Danielowski S., Luethe N.,
Sharma H.S., Schaper W.;
"Isolation of heparin-binding growth factors from bovine, porcine and
                                                                                                                                                                                                                                                                                                        01-FEB-1996 (Rel. 33, Last Sequence update)
15-UUL-1999 (Rel. 38, Last annotation update)
HFPRAIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST GROWTH FACTOR) (AFGF) (ALPHA-ENDOTHELIAL CELL GROWTH FACTOR)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                       KGTETGQYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGS 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
                                                                                                                                                                                                                                                                                 LTERFNLPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYI 71
                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sus scrofa (Pig).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Schmidt M., Sharma H.S., Schott R.J., Schaper W.; Amplification and sequencing of mRNA encoding acidic fibroblast growth factor (aFGF) from porcine heart.":
                                                                                     ij
               PROSITE; PS00247; HBGF_FGF; 1.

Growth factor; Mitogen; Vascularization; Heparin-binding.

BROPEP 1 15 BROMILARITY.

CHAIN 16 155 HEPARIN BINDING GROWTH FACTOR
BINDING 24 28 HEPARIN (POTENTIAL).

ATMINING 113 116 HEPARIN (POTENTIAL).
                                                                                                                                                                                                Length 155;
                                                                                                                                                                                                                                           Indels
                                                                                                                              EPARIN (POTENTIAL).
41E5EC760E412CC5 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      actor (aFGF) from porcine heart.";
Biophys. Res. Commun. 180:853-859(1991).
                                                                                                                                                                                              Score 973; DB 1; Le
Pred. No. 3.64e-204;
5; Mismatches 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            152 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                           132 CKRGPRTHYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    231 CKRGPRTHYGQKAILFLPLPVSSD 254
                                                                               16 155 HE
24 28 HE
113 116 HE
155 AA; 17403 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-FEB-1991 (Rel. 17, Created)
                                                                                                                                                                                              53.7%;
larity 92.4%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; X60317; CAA42869.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SUBUNIT: MONOMER.
                                                                                                                                                                                                                    Local Similarity
ses 133; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         THAN DOES BFGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE; 92062117.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
PRINTS; PR00263;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FGF1 OR FGF-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TISSUE-HEART
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FRAGMENT
                                                                                                                              BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JT 4
FGF1_PIG
P20002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Blochem.
                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                    12
                                                                                                                                                                                                                                                                                                                                                                       72
                                                                                                                                                                                                                                         Matches
ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            fibroblast growth factor cDNA.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                23-0CT-1986 (Rel. 02, Created)
01-MAR-1989 (Rel. 10, Last sequence update)
15-UUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST
GROWTH FACTOR) (ARGF) (PROSTATROPIN) (ENDOTHELIAL CELL GROWTH FACTOR
BETA AND ALPHA CHAINS) (ACIDIC EYE-DERIVED GROWTH FACTOR II) (EDGF
                                                                                                                                                                                                                                                                                                                                                                                                                                           79 YLAMDTSGLLYGSQTPSEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGPRT 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Burgess W.H., Mehlman T., Marshak D.R., Fraser B.A., Maciag T.; "Structural evidence that endothelial cell growth factor beta is the precursor of both endothelial cell growth factor alpha and acidic fibroblast growth factor."

Proc. Natl. Acad. Sci. U.S.A. 83:7216-7220(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                   78
                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alterio J., Halley C., Brou C., Soussi T., Courtois Y., Laurent M.; "Characterization of a bovine acidic FGF cDNA clone and its
                                                                                                               HEPARIN-BINDING GROWTH FACTOR 1.
ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                   19 PPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                      ;
                                                                                                                                                                                                                                                                                                                         Length 152;
                                                                  Vascularization; Heparin-binding
                                                                                                                                                                                                                                                                         MW; AE853B0A92F9ABF4 CRC64;
                                                                                                                                                                                                                                                                                                                         Score 958; DB 1; I
Pred. No. 2.08e-200;
                                                                                                                                                                                                         C -> S (IN REF. 2)
R -> Y (IN REF. 2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        155 AA.
                                                                                                                                                                                                                                                                                                                                                                    2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Nucleotide sequence of bovine acidic fi
Nucleic Acids Res. 16:10913-10913(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OR FGF-1 OR FGFA OR HBGF-1 OR AFGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ey C., Courtois Y., Laurent M.;
leotide sequence of bovine acidi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                retina.";
HSSP; P05230; 2AXM.
PFAM; PF00167; FGF; 1.
PROSITE; PS00247; HBGF_FGF;
Growth factor; Mitogen; Vasc
                                                                                                                                                                                                                                                                                                                      52.8%;
llarity 96.3%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              expression in brain and ref
FEBS Lett. 242:41-46(1988)
                                                                                                                                                                                                                                                                            17103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   139 HYGQKAILFLPLPV 152
                                                                                                               >152
>152
>152
28
116
                                                                                                                                                                                                         31
39
152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bovidae; Bovinae; Bos.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       taurus (Bovine).
                                                                                                                                                                                                         31
39
152 :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eutheria;
                                                                                                                                                                                                                                                                                                                                              Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TISSUE-RETINA;
MEDLINE; 89078619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE OF 2-155.
MEDLINE; 87016918.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE OF 2-155
MEDLINE: 87026586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE; 89083506
                                                                                                                                                                                                                                                                                                                                                                    129;
```

MEDLINE;

```
PRINTS; PR00262; ILIHBGF.
PRINTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding; Acetylation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              79 FLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKHWFVGLKKNGRSKLGPRT 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PLGNYKKPKI,LYCSNGGYFLRILPDGTVDGTKDRSDQHIQLQLCAESIGEVYIKSTETGQ 78
                                                                                                                                                                                                                                                                      HEPARIN-BINDING GROWTH FACTOR 1.
ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
ACETYLATION.
HEDARIN (POTENTIAL).
HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                        ENDOTHELIAL CELL GROWTH FACTOR BETA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             17493 MW; F636641F189F9BFD CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 926; DB 1; I
Pred. No. 2.10e-192;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ź
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .7; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 6
ID FGF1_CHICK STANDARD; PRT: 155 AA
AC P195596.
DT 01-FEB-1991 (Rel. 17, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            51.1%; silarity 91.2%; E
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HFGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HYGOKAILFLPLPVSSD 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          98
                                                                                                                                                                                                                                                                                                                                                                                                         443
661
661
73
88
85
85
                                                                                                     1BAR; 31-OCT-93
1AFC; 31-OCT-93
                                                                                                                                      PFAM; PF00167; FGF;
                                                                     B24663
S02102
      A25043
                                    C25043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
les 125; Conser
                                                                     B24663;
                                                                                                                                                                                                                      3D-structure
PROPEP
                                     225043;
                                                                                      502102;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                      CHAIN
CHAIN
MOD_RES
BINDING
                                                                                                                                                                                                                                                                                                                                      BINDING
                                                                                                                                                                                                                                                                                                                                                                       TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAND
HELIX
STRAND
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                        TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                        HELIX
STRAND
STRAND
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               238
     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Science 251:90-93(1991).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE IISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Quinkler W., Maasberg M., Bernotat-Danielowski S., Luethe N.,
Sharma H.S., Schaper W.;
"Isolation of heparin-binding growth factors from bovine, porcine and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -!- SUBUNIT: MONOMER.
-!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY THAN DOES BEGF.
-!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
MEDLINE; 91095983.
Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
Hau B.T., Rees D.C.;
Three-dimensional structures of acidic and basic fibroblast growth
                                                                                                                                   Gimenez-Gallego G., Rodkey J., Bennett C., Rios-Candelore M.,
Disalvo J., Thomas K.;
"Brain-derived acidic fibroblast growth factor: complete amino acid
Crabb J.W., Armes L.G., Carr S.A., Johnson C.M., Roberts G.D., Bordoli R.S., McKeehan W.L.; Complete primary structure of prostatropin, a prostate epithelial cell growth factor."; Blochemistry 25:4988-4993(1986).
                                                                                                                                                                                                                                                                                                                                                                     MEDLINE; 86261806.

Abraham J.A., Mergia A., Whang J.L., Tumolo A., Friedman J.,
Hjerrild K.A., Gospodarowicz D., Fiddes J.C.;
Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fibroblast growth factor.";
Science 233:545-548(1986).
                                                                                                                                                                                                                                                   MEDLINE; 86055750.

Boehlen P., Esch F., Baird A., Gospodarowicz D.;

"Acidic fibroblast growth factor (FGF) from bovine brain:
amino-terminal sequence and comparison with basic FGF.";

EMBO J. 4:1951-1956(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 1-18 FROM N.A. Philippe J.M., Renaud F., Desset S., Laurent M.; Submitted (JUL-1992) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                     SEQUENCE OF 16-44, AND COMPOSITION.
MEDLINE; 86055750.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eur. J. Biochem. 181:67-73(1989)
                                                                                                                                                                                     sequence and homologies.";
Science 230:1385-1388(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; M13439; AAA30516.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CAA31610.1; -
                                                                                                                                                                                                                                                                                                                                                       SEQUENCE OF 16-56 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAA30517.1;
CAA47063.1;
AAA30563.1;
AAA30564.1;
                                                                                                                   86070224.
                                                                                                     SEQUENCE OF 16-155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A01385; GKBOA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 16-45. MEDLINE; 89231704.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          canine hearts."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                X14032;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 M97661;
```

A STATE STAT

factors.

EMBL; EMBL; EMBL;

PIR;

EMBL; EMBL;

EMBL;

ö

Gaps

ö

φ

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS OF A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -!- SUBUNIT: MONOMER.
-!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
THAN DOES BFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15-JUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST GROWTH FACTOR) (ALPHA-ENDOTHELIAL CELL GROWTH FACTOR).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     72 KSTASGQYLAMDINGLLYGSQLPGEECLFLERLEENHYNTYISKKHADKNWFVGLKKNGN 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          111 KSTETGQYLAMDTDGILYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGS 230
                                                                                              Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12 LTERFGLPLGNYKKPKLLYCSNGGHFLRILPDGKVDGTRDRSDQHIQLQLSAEDVGEVYI 71
                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE OF 22-48.
MEDLINE: 88296438.
Risau W., Gautschi-Sova P., Boehlen P.;
"Endothelial cell growth factors in embryonic and adult chick brain are related to human acidic fibroblast growth factor.";
EMBO J. 7:959-962(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ENDOTHELIAL CELL GROWTH FACTOR ALPHA. HEPRAKIN (POTENTIAL).
HEPRAKIN (POTENTIAL).
8EDB70545E284365 CRC64;
                                                                                                                                                                                                           Schnurch H., Risau W.;
Differentiating and mature neurons express the acidic fibroblast
growth factor gene during chick neural development.";
Development 111:1143-1154(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HEPARIN-BINDING GROWTH FACTOR 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 926; DB 1; Length 155;
Pred. No. 2.10e-192;
10; Mismatches 9; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HSSP; P05230; ZAXM.
PFAM; PF00167; FGF; 1.
PRINTS; PR00262; ILLHBGF.
PRINTS; PR00243; HBGF-FGF; 1.
PROSITE, PS00247; HBGF-FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                                                                 to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             17322 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; U31863; AAA80310.1; -.
EMBL; S63261; AAD13942.1; -.
PIR; S02639; S02639.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; S63263; AAB19629.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        124; Conservative
                                                                          Gallus gallus (Chicken).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15
155
155
28
                                                                                                                                                                                                                                                                                                                             Martin G.R., Han J.K.,
Submitted (JUL-1995) to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local Similarity
                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                             91347925
                                                           OR FGF-1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                               MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BINDING
                                                                                                                                      Gallus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best
 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
```

132 SKLGPRTHYGQKAILFLPLPVSAD 155

g

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its most by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Tsuzuki S., Katsumi A., Yamazaki T., Sugiura I.,
                                                                                                                                                                                                                                                                                               TISSUB-LUNG FIBROBLAST;
MEDLINE; 92363936.
David G., van der Schueren B., Marynen P., Cassiman J.-J.,
van den Berghe H.;
"Molecular cloding of amphiglycan, a novel integral membrane heparan
sulfate proteoglycan expressed by epithelial and fibroblastic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Rojima T., Inazawa J., Takamatsu J., Rosenberg R.D., Saito H.; "Human ryudocan core protein: molecular cloning and characterization of the cDNA, and chromosomal localization of the gene."; Biochem. Biophys. Res. Commun. 190:814-822(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "Structural organization and promoter activity of the human ryudocan
                                                                                  SDC4_HUMAN STANDARD; PRT; 198 AA.
P31431; Q16833; O00773;
01-701-1993 (Rel. 36, Created)
15-JUL-1998 (Rel. 36, Last sequence update)
15-FEB-2000 (Rel. 39, Last annotation update)
SYNDECAN-4 PRECURSOR (AMPHIGLYCAN) (SYND4) (RYUDOCAN CORE PROTEIN).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -!- SIMILARITY: BELONGS TO THE SYNDECAN FAMILY OF INTEGRAL MEMBRANE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PFAM, PF01034; Syndecan; 1.
PROSITE; PS00964; SYNDECAN; 1.
Proteoglycan; Heparan sulfate; Transmembrane; Glycoprotein; Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FUNCTION: CELL SURFACE PROTEOGLYCAN THAT BEAR HEPARAN SULFATE. SUBCELLULAR LOCATION: TYPE I MEMBRANE PROTEIN.
                                                                                                                                                                                                              Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -!- TISSUE SPECIFICITY: EXPRESSED IN EPITHELIAL AND FIBROBLASTIC
                                                                                                                                                                                                                                                   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (APR-1999) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SYNDECAN-4.
EXTRACELLULAR (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              POTENTIAL
231 CKRGPRTHYGQKAILFLPLPVSSD 254
                                                                                                                                                                                                                                                                                                                                                                                                                          Cell Biol. 118:961-969(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; X67016; CAA47406.1; --
EMBL; D13292; BAA02550.1; --
EMBL; D79206; BAA19613.1; --
EMBL; AL021578; CAA16520.1; --
PIR; S26695; S26695.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Biochem. 119:979-984(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE; 96390006.
Takagi A., Kojima T.,
Hamaguchi M., Saito H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PROTEOGLYCANS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE; 93176185.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TISSUE-PLACENTA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bridgeman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                           cells
                                                                     RESULT
                  ò
```

```
SEEEES
                                                                                                                셤
                                                                                                                                    ö
                                                                                                                                                      g
                                                                                                                                                                           å
                                                                                                                                                                                              ក្ត
                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its mose by, non-profit institutions as long as its content is in no way modified and this statement is not removed, usage by and for commercial entities requires a license agreement. (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                            ö
            (POTENTIAL).
                       (POTENTIAL).
                                                                                                                                                                61 SGSGDLDDLEDSMIGPEVVHPLVPLDNHIPERAGSGSQVPTEPRKLEENEVIPKRISPVA 120
                                                                                                                                                      61 SGSGDLDDLEDSMIGPEVVHPLVPLDNHIPERAGSGSQVPTEPKKLEENEVIPKRISPVE 120
                                                                                                                         1 MAPARLFALLLFFVGGVAESIRETEVIDPQDLLEGRYFSGALPDDEDVVGPGGESDDFEL 60
                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Buteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
                                                                                                               1 MAPARLFALLLFFVGGVAESIRETEVIDPQDLLEGRYFSGALPDDEDVVGPGQESDDFEL 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Proteoglycan; Heparan sulfate; Transmembrane; Glycoprotein; Signal. SIGNAL 1 23 POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
MEDLINE; 92165852.
KOjima T., Shworak N.W., Rosenberg R.D.;
Molecular cloning and expression of two distinct cDNA-encoding heperan sulfate proteoglycan core proteins from a rat endothelial cell line.";
                                                                                            ö
CYTOPLASMIC (POTENTIAL).

O-LINKED (GLYCOSAMINOGLYCAN) (PO-LINKED (GLYCOSAMINOGLYCAN) (PO-LINKED (GLYCOSAMINOGLYCAN) (F C -> L (IN REF. 1).

W; 8229AA2733F77A10 CRC64;
                                                                      Score 827; DB 1; Length 198;
Pred. No. 9.76e-168;
                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SYNDECAN-4.
EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                                                                                                                            01-FEB-1994 (Rel. 28, Created)
01-FEB-1994 (Rel. 28, Last sequence update)
15-FEB-2000 (Rel. 39, Last annotation update)
SYNDECAN-4 PRECURSOR (RYUDOCAN CORE PROTEIN).
                                                                                          1; Mismatches
                                                                                                                                                                                                                                                          202 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                    J. Biol. Chem. 267:4870-4877(1992)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PFAM; PF01034; Syndecan; 1.
PROSITE; PS00964; SYNDECAN; 1.
 198
39
0
61
0
63
12
F
21641 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; M81786; AAA73167.1; -.
                                                                     45.6%;
llarity 98.3%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S61868; AAB26725.1; -.
                                                                                                                                                                                                                                                                                                                                Rattus norvegicus (Rat).
 171
39
61
63
12
12
198 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PIR; A42410; A42410.
                                                                              Local Similarity
nes 119; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PROTEOGLYCANS.
                                                                                                                                                                                                                                                                                                                      SDC4 OR SYND4
                                                                                                                                                                                              121 E 121
                                                                                                                                                                                                                                           8
SDC4_RAT
P34901:
01-7
                                                                                                                                                                                                                121 N 121
 DOMAIN
CARBOHYD
CARBOHYD
CARBOHYD
CORFLICT
                                                  SEQUENCE
                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL;
                                                                                  Best Loc
Matches
                                                                                                                                                                                                                                                                    FT
FT
FT
SO
                                                                                                               g
                                                                                                                                  ò
                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Borja A.Z., Zeller R., Meijers C.;

"Expression of alternatively spliced bFGF first coding exons and antisense mRNAs during chicken embryogenesis.";

Dev. Biol. 157:110-118(1993).

-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
POTENTIAL.

CYTOPLASMIC (POTENTIAL).

CYTOPLASMIC (FOTENTIAL).

O-LINKED (GLYCOSAMINOGLYCAN) (POTENTIAL).

O-LINKED (GLYCOSAMINOGLYCAN) (POTENTIAL).

SD9C8B3BF4C0D58A CRC64;
                                                                                                                                                                                                                                                                                                                                                                          D-FELSGSGDLDDTEEPRTFPEVISPLVPLDNHIPENAQPGIRVPSEPKELEENEVIPKR 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
                                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-FEB-1996 (Rel. 33, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR)
                                                                                                                                                                                                                                                                                                       55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                 1 MAPVCLFAPLLLLLLGGFPVAPGESIRETEVIDPQDLLEGRYFSGALPDDEDAGGLEQDS
                                                                                                                                                                                                                 ..
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BY SIMILARITY.
HEPARIN-BINDING GROWTH FACTOR 2.
HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
7B69B684C17F1816 CRC64;
                                                                                                                                                              Length 202;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PEAM: PF00167; FGF; 1.
PRINTS: PR00262; ILJHBGF.
PRINTS: PR00264; HBGFFGF; 1.
PROSTIE: PS00247; HBGFFFF; 1.
Growth factor: Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                            Score 546; DB 1; Length 202
Pred. No. 7.79e-99;
13; Mismatches 15; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    158 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          17374 MW;
                                                                                                                     MM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; M95707; AAA48617.1; -.
                                                                                                                                                            7 Match 30.1%;
Local Similarity 72.4%;
nes 89; Conservative
174
202
44
65
67
21962 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13
30
119
158 AA;
                                                                     65
67
202 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      P09038; 1BFF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A. MEDLINE, 93246053.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FGF2 OR FGF-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        :::
ISP 118
                                                                                                                                                                                                                                                                                                                                                                                                                                           120 VPS 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LT 9
FGF2_CHICK
P48800;
                        DOMAIN
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BINDING
                                                                                           CARBOHYD
                                                                                                                   SEQUENCE
    TRANSMEM
                                                                        CARBOHYD
                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gallus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         116
                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                            Matches
```

ij

.; ;;

81

œ

25

쉱 ò g à g

```
TISSUE=KIDNEY;
MEDLINE; 86095426.
Baird A., Esch F., Boehlen P., Ling N., Gospodarowicz D.;
"Isolation and partial characterization of an endothelial cell growth factor from the bovine kidney: homology with basic fibroblast growth factor.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            23-0CT-1986 (Rel. 02, Created)
23-0CT-1986 (Rel. 02, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR): (BFGF) (PROSTATROPIN) [CONTAINS: KIDNEY-DERIVED GROWTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE: 86016731.
ESCH F., Baird A., Ling N., Ueno N., Hill F., Denoroy L., Klepper R., Gospodarowicz D., Boehlen P., Guillemin R.; "Primary structure of bovine pituitary basic fibroblast growth factor (FGF) and comparison with the amino-terminal sequence of bovine brain
                                                                                                                                                                                                                                                                                                                                   Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.; "Human basic fibroblast growth factor: nuclectide sequence, genomic organization, and expression in mammalian cells."; Cold Spring Harb. Symp. Quant.. Biol. 51:657-668(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bos taurus (Bovine).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoldea;
                                                                                                                                                                                                                 22 PPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE OF 1-9.
MEDILINE: 86295/37.
UGOO N., Baird A., Esch F., Ling N., Guillemin R.;
URSOLation of an amino terminal extended form of basic fibroblast growth factor.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Abraham J.A., Mergia A., Whang J.L., Tumolo A., Friedman J., Hjerrild K.A., Gospodarowicz D., Fiddes J.C.; "Nucleoride sequence of a bovine clone encoding the angiogenic protein, basic fibroblast growth factor."; Science 233:545-548(1986).
HEPARIN (POTENTIAL).
BSF2364BA610606D CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Proc. Natl. Acad. Sci. U.S.A. 82:6507-6511(1985)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Commun. 138:580-588(1986)
                                                                                  Score 521; DB 1; 1
Pred. No. 8.03e-93;
22; Mismatches 37,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             155 AA
   119 H
17280 MW;
                                                                                     Match 28.7%;
Local Similarity 55.1%;
les 75; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                           140 GPGQKAILFLPMSAKS 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    238 HYGOKAILFLPLPVSS 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    iochem. Biophys. Res.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bovidae; Bovinae; Bos.
116 J
155'AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE OF 10-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE OF 25-41.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A. MEDLINE; 86261806.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE; 87217066.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FGF2 OR FGF-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         acidic FGF.'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FGF2_BOVIN
P03969;
   BINDING
SEQUENCE
                                                                                           Query Match
                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HID DE STATE SERVICE S
   ST
                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                  ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SUBUNIT: MONOMER.
MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                          85 FLAMKEDGRLLALKCATEECFFFERLESNNYNTYRSRKYSD--WYVALKRTGQYKPGPKT 142
                                                                                                                                                                                                                                                                                                             -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                       01-FEB-1991 (Rel. 17, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
GRATH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTATROPIN)
                                                                                        Gaps
                                                                                                                                                        PPGHFKDPKRLYCKNGGFFLRINPDGRVDGVREKSDPHIKLOLOAEERGVVSIKGVSANR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ovis aries (Sheep).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostoml;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE; 88055577.
Simpson R.J., Moritz R.L., Lloyd C.J., Fabri L.J., Nice E.C.,
Rubira M.R., Burgess A.W.;
"Primary structure of ovine pituitary basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HEPARIN-BINDING GROWTH FACTOR 2. CELL ATTACHERY SITE (POTENTIAL). CELL ATTACHERY SITE (POTENTIAL). HEPARIN (POTENTIAL).
                                                                                        ;
;
                         Length 158;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PIR; SOURS; SOURSE.
HSSP; P09038; 1BFF.
HSSP; P09038; 1BFF.
PRINTS; PR00262: ILIHBGF.
PRINTS; PR00263; HBGFFGF.
PRINTS; PS00247; HBGF-FGF.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                         Pred. No. 2.91e-94;
23; Mismatches 37; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       [1] SECURICE FROM N.A. SEQUENCE FROM G.R.; Cam G.R.; Sutton R., Ward W.G., Raphael K.A., Cam G.R.; Submitted (SEP-1994) to the EMBL/GenBank/DDBJ databases
                            DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 155 AA
                            Score 527;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; L36136; AAA31519.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Lett. 224:128-132(1987)
                         Query Match 29.1%;
Best Local Similarity 54.4%;
Matches 74; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                  143 GPGOKAILFLPMSAKS 158
                                                                                                                                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bovidae; Caprinae; Ovis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  48
90
31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE OF 9-155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OR FGF-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FGF2_SHEEP
P20003;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SITE
SITE
BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       factor.
```

CHAIN

```
SEQUENCE FROM N.A. MEDLINE; 89184522.
                                                                           Local Similarity
les 75; Conser
                                                    155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
MEDLINE; 87213238.
                                                                                                                                                                                                                                                                                               [1]
SEQUENCE FROM N.A.
MEDLINE; 87053817.
                                                                                                                                                                                                                                                                                                                                                                                                                                                             amino terminus.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 growth factor.
                                                                                                                                                                                                                                                                 FGF2 OR FGFB.
                                                                                                                                                                                                    LT 12
FGF2_HUMAN
P09038;
                                                                                                                                                                                                                          01-NOV-1988
                                             STRAND
SEQUENCE
                                                                   Query Match
STRAND
TURN
STRAND
HELIX
                                      HELIX
                              TURN
                                                                                  Matches
                                                                                                                                                                                                   SOLUTION
                                                                                                                 å
                                                                                                                               ద
                                                                                                                                               à
                                                                                                                                                             g
                                                                                                                                                                             ò
                                                                                                                                                                                                          This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to licenseélsb-sib.ch).
                                                                                                                      MEDLINE; 87119165.
UGEO N., Baird A., Esch F., Shimasaki S., Ling N., Guillemin R.;
Purification and partial characterization of a mitogenic factor from
Dovine liver: structural homology with basic fibroblast growth
factor.",
                                                                                                                                                                            -!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                            -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
MEDLINE; 91095983.
Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
Hau B.T., Rees D.C.;
"Three-dimensional structures of acidic and basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                HEPARIN-BINDING GROWTH FACTOR 2. TRIDBY-DEBLYUED GROWTH FACTOR. CELL ATTACHMENT SITE (POTENTIAL). CELL ATTACHMENT SITE (POTENTIAL).
                                                                                                                                                                                                                                                                             PIR; A24663; GKBOB.

PIR; A24819; A24819.

PIR; A24819; A267193.

PRAM; PR00265; ILIHBGF.

PROSITE; PS00247; HBGFFGF.

PROSITE; PS00247; HBGFFGF.

PROPER.

1 9
                                                                                                                                                                                                                                                                                                                                                                                              HEPARIN (POTENTIAL).
                                                                    Regul. Pept. 16:135-145(1986).
Regul. Pept. 12:201-213(1985)
                                                                                                                                                                                                                                                                       EMBL; M13440; AAA30518.1; -.
                                                                                                                                                                                                                                                                                                                                                                SEQUENCE OF 21-40.
                                                                                                                                                                                                                                                                                                                                                           LISSUE-KIDNEY
                                                                                                                                                                                                                                                                                                                                                                                               BINDING
                                                                                                                                                                                                                                                                                                                                                                                                             STRAND
TURN
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAND
TURN
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TURN
STRAND
HELIX
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                    TURN
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                          HELIX
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAND
                                                                                                                                                                                                                                                                                                                                                                        CHAIN
SITE
SITE
                                                                                                                                                                                                                                                                                                                                                                  CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IURN
```

```
82 YLAMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGPKT 139
                                                                                                                                                                                                                                                                                                                                                                                       01-NOV-1988 (Rel. 09, Last sequence update)
01-NOV-1997 (Rel. 35, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSIATROPIN)
                                                                                                                                                                                                                                                                                                                                                           22 PPGHFKDPKKLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANR 81
                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
MEDLINE: 87217066.
Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.;
Human basic fibroblast growth factor: nucleotide sequence, genomic organization, and expression in mammalian cells.";
Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sommer A., Brewer M.T., Thompson R.C., Moscatelli D., Presta M., Rifkin D.B.; "A form of human basic fibroblast growth factor with an extended
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
MEDILINE: 87162468.
KULOKawa T., Sasada R., Iwane M., Igarashi K.;
"Cloning and expression of cDNA encoding human basic floroblast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Abraham J.A., Whang J.L., Tumolo A., Mergia A., Friedman J., Gospodarowicz D., Fiddes J.C.;
"Human basic fibroblast growth factor: nucleotide sequence and
                                                                                                                                                                                                                                                                                                        ..
7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Prats H., Kaghad M., Prats A.C., Klagsbrun M., Lelias J.M.,
Liauzun P., Chalon P., Tauber J.P., Amairic F., Smith J.A.,
                                                                                                                                                                                                                                               Length 155;
                                                                                                                                                                                                                                                                                                        22; Mismatches 37; Indels
127
130
133
138
142
146
151
151
17250 MW; BEGCE70FA6107129 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   31ochem. Biophys. Res. Commun. 144:543-550(1987)
                                                                                                                                                                                                                                                  Score 521; DB 1; Pred. No. 8.03e-93;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        155 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (Rel. 09, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EBS Lett. 213:189-194(1987)
                                                                                                                                                                                                                                               28.7%;
larity 55.1%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          genomic organization."; EMBO J. 5:2523-2528(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                140 GPGQKAILFLPMSAKS 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             238 HYGQKAILFLPLPVSS 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                  SUBUNIT: MONOMER.
MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                      SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HEPARIN-BINDING GROWTH FACTOR 2. CELL ATTACHMENT SITE (POTENTIAL). CELL ATTACHMENT SITE (POTENTIAL). HEPARIN (POTENTIAL). HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFFGF; 1
PR0SITE; PS00247; HBGFFGF; 1
Growth factor; Mitogen; Vascularization; Heparin-binding;
CONCENTRATION OF THESE 2 GROWTH FACTORS
                                                                                                                                                                                                                                                  EMBL; M17599; AAA52534.1; ALT_INIT.
EMBL; X04431; CAA28027.1; -.
                                                                                                                                                                                                                                                                                                                                          AAA52533.1; ALT_INIT.
                                                                                                                                                                                                                                                                                                        EMBL; X04433; CAA28029.1;
EMBL; M27968; AAA52448.1;
EMBL; J04513; AAA52533.1;
                                                                                                                                                                                                                                                                                         EMBL; X04432; CAA28028.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   08-NOV-96
                                                                                                                                                                                                                                                                                                                                                                                                                B24301.
B32878.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2FGF; 15-APR-92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  30-APR-94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  96-NON-80
                                                                                                                                                                                                                                                                                                                                                                                                  B24243
                                                                                                                                                                                                                                                                                                                                                            A25824; A25824
A26642; A26642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3D-structure,
PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                  B24301;
                                                                                                                                                                                                                                                                                                                                                                                                                                   B32878;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    500297;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1BFG;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1BFB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1BFC;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2BFH;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HELIX
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HELIX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   URN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             rurn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PDB;
PDB;
PDB;
PDB;
 MEDLINE; 97040521.

MOY F.J., Seddon A.P., Boehlen P., Powers R.;
Moy F.J., Seddon A.P., Boehlen P., Powers R.;
Migh-resolution solution structure of basic fibroblast growth factor determined by multidimensional heteronuclear magnetic resonance spectroscopy.";

Biochemistry 35:13552-13561(1996).

I Biochemistry 35:13552-13561(1996).

IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITNO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
                                                                                                                                                                                                                                                                                                                                        SEQUENCE OF 2-22.
MEDLINE: 8715686.
Story M.T., Esch F., Shimasaki S., Sasse J., Jacobs S.C., Lawson R.K.;
"Amino-terminal sequence of a large form of basic fibroblast growth factor isolated from human benign prostatic hyperplastic tissue.";
Biochem. Biophys. Res. Commun. 142:702-709(1987).
                                                                                                                     Sautschi P., Frater-Schroeder M., Boehlen P.;
*Partial molecular characterization of endothelial cell mitogens from human brain: acidic and basic fibroblast growth factors.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE; 94004464.
Eriksson A.E., Cousens L.S., Matthews B.W.;
Refinement of the structure of human basic fibroblast growth factor at 1.6-A resolution and analysis of presumed heparin binding sites by selenate substitution.";
Protein Sci. 2:1274-1284(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Zhang J., Cousens L.S., Barr P.J., Sprang S.R.;
"Three-dimensional structure of human basic fibroblast growth factor,
a structural homolog of interleukin 1 beta.";
Proc. Natl. Acad. Sci. U.S.A. 88:3446-3451(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE; 91095983.

MENLINE; 91095983.

Laba X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,

Hsu B.T., Rees D.C.;

"Three-dimensional structures of acidic and basic fibroblast growth
                                                                                                                                                                                                                                                Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.; "Human brain-derived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitogenic activities."; Biochem. Biophys. Res. Commun. 135:541-548(1986).
              "High molecular mass forms of basic fibroblast growth factor are initiated by alternative CUG codons.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE; 91195367.
Eriksson A.E., Cousens L.S., Weaver L.H., Matthews B.W.;
"Three-dimensional structure of human basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE; 92121151.
Ago H., Kitagawa Y., Fujishima A., Matsuura Y., Katsube Y.;
"Crystal structure of basic fibroblast growth factor at 1.6-A
                                   initiated by alternative CUG codons.";
Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Proc. Natl. Acad. Sci. U.S.A. 88:3441-3445(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          X-RAY CRYSTALLOGRAPHY (1.8 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Biochem. 110:360-363(1991).
                                                                                                                                                                           FEBS Lett. 204:203-207(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Science 251:90-93(1991).
                                                                                     SEQUENCE OF 10-35.
                                                                                                      MEDLINE; 86275260.
Gautschi P., Frate
                                                                                                                                                                                                                SEQUENCE OF 10-39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE; 91195368
                                                                                                                                                                                                                                 86186784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRUCTURE BY NMR
                                                                                                                                                            human brain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            resolution."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      factors.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            factor.
```

RT REPRESENT REP

```
셤
                                                                      ö
                                                                                          원
                                                                                                                  à
                                                                                                                                       g
                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGENTS
IN
                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE; 90201563.

Hebert J.M., Basilico C., Goldfarb M., Haub O., Martin G.R.;

"Isolation of cDNAs encoding four mouse FGF family members and characterization of their expression patterns during embryogenesis.";

Dev. Biol. 138:454-463(1990).

-!- FONGTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTE.

IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITNO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SUBUNIT: MONOMER.
MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                  82 YLAMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYT--SWYVALKRTGQYKLGSKT 139
                                                                                                                                                              PPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANR 81
                                                                                                                                                                                                                                                                                                      01-APR-11990 (Rel. 14, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
14FPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTATROPIN).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AFGF.
SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                            Mus musculus (Mouse).
Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi,
Mammalia, Eutheria, Rodentia, Sciurognathi, Muridae, Murinae, Mus.
                                                                               ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ς.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HEPARIN-BINDING GROWTH FACTOR
                                                        Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
PROPEP
                                                      Score 514; DB 1; Length 155
Pred. No. 3.83e-91;
23; Mismatches 37; Indels
141 142
144 146
148 152
155 AA; 17254 MW; BEGCE13373007129 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
689F677416274388 CRC64;
                                                                                                                                                                                                                                                                     154 AA
                                                                                                                                                                                                                                                                                          01-APR-1990 (Rel. 14, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    17153 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; M30644; AAA37621.1; -. PIR; C37360; C37360. HSSP; P09038; 1BFF.
                                                       Similarity 54.4%;
74; Conservative
                                                                                                                                                                                                            140 GPGQKAILFLPMSAKS 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PFAM; PF00167; FGF; 1.
PRINTS; PR00262; IL1HBGF.
PRINTS; PR00263; HBGFFGF.
                                                                                                                                                                                                                                                                    STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MGI:95516; FGF2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  154 AA;
                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.
                                                                                                                                                                                                                                                                                                                                                  OR FGF-2
                                                                                                                                                                                                                                                      JT 13
FGF2_MOUSE
P15655;
                                                                                                                                                                                                                                                                                                    01-APR-1990
01-FEB-1996
            HELIX
STRAND
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BINDING
                                                       Query Match
                                                                   Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CHAIN
                                                                                                      22
                                                                              Matches
 SFF
                                                                                                                                                                                                                                                                                           g
                                                                                                                                                 셤
                                                                                                                                                                         ò
                                                                                                                                                                                              g
                                                                                                                            ò
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                     ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Shimasaki S., Emoto N., Koba A., Mercado M., Shibata F., Cooksey K., Baird A., Ling N.;
"Complementary DNA cloning and sequencing of rat ovarian basic fibroblast growth factor and tissue distribution study of its mRNA.";
Biochem. Biophys. Res. Commun. 157:256-263(1988).
                                                                                                                                                                                                                                                                                                        81 YLAMKEDGRLLASKCVTEECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGSKT 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Metazoa; Chórdata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE; 92329546.
El-Husseini A.E.D., Paterson J.A., Myal Y., Shiu R.P.C.;
El-Husseini A.E.D., Paterson J.A., Myal Y., Shiu R.P.C.;
PCR detection of the rat brain basis of ibroblast growth factor (bFGF)
mRNA containing a unique 3' untranslated region.";
Blochim. Biophys. Acta 1131:314-316(1992).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENT
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01.JAN-1990 (Rel. 13, Created)
01-JAN-1990 (Rel. 13, Last sequence update)
15-JUL-1998 (Rel. 36, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
                                                                                                                                   21 PPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANR 80
                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE; 88262516.
Krockawa T., Seno M., Igarashi K.;
"Nucleotide sequence of rat basic fibroblast growth factor cDNA.";
Nucleic Acids Res. 16:5201-5201(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE; 97200905.
Pasumarthi K.B.S., Jin Y., Cattini P.A.;
Cloning of the rat fibroblast growth factor-2 promoter region
its response to mitogenic stimuli in glioma C6 cells.";
                                                                     ;
Length 154;
   Score 513; DB 1; Length 154
Pred. No. 6.65e-91;
23; Mismatches 37; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TISSUE SPECIFICITY: FOUND IN ALL THE TISSUES EXAMINED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   154 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GROWTH FACTOR) (BFGF) (PROSTATROPIN). FGF2 OR FGF-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE OF 1-28 FROM N.A. STRAIN-SPRAGUE-DAWLEY; TISSUE-TESTIS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
STRAIN-SPRAGUE-DAWLEY; TISSUE-OVARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRAIN-SPRAGUE-DAWLEY; TISSUE-BRAIN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Neurochem. 68:898-908(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE OF 35-154 FROM N.A.
Query Match
28.3%;
Best Local Similarity 54.4%;
Matches 74; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                           139 GPGQKAILFLPMSAKS 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Rattus norvegicus (Rat)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SUBUNIT: MONOMER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE; 89061721.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TISSUE-BRAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JT 14
FGF2_RAT
P13109;
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
the European Bioinformatics Institute. There are no restrictions on its mose by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        81 YLAMKEDGRLLASKCVTEECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGSKT 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Saito H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21 PPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANR 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TSUZUKI S., KOJIME T., Katsumi A., Yamazaki T., Sugiura I., Saito H.
"Molecular cloning, genomic organization, promoter activity, and
tissue-specific expression of the mouse ryudocan gene.";
J. Blochem. 122:17-24(1997).
I. FUNCTION: CELL SURFACE PROTEOGLYCAN THAT BEAR HEPARAN SULFATE.
I. SUBCELLULAR LOCATION: TYPE I MEMBRANE PROTEIN.
I. TISSUE SPECIFICITY: UBIQUITOUS.
I. SIMILARITY: BELONGS TO THE SYNDECAN FAMILY OF INTEGRAL MEMBRANE
PROTEOGLYCANS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mus musculus (Mouse).
Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HEPARIN-BINDING GROWTH FACTOR 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                          PRINTS; PRO0262; ILTHBGF.
PRINTS; PRO02623; HBGFFGF.
PROSITE; PS00247; HBGF_FGF; 1.
PROSITE; PS00247; HBGF_FGF; 1.
PROPEP 9 HEPARIN-RINDING CENTURY DATAFORM DATAFORM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 513; DB 1; Length 154
Pred. No. 6.65e-91;
23; Mismatches 37; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
1A0F14FF423D8403 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                15-FEB-2000 (Rel. 39, Last sequence update)
15-FEB-2000 (Rel. 39, Last annotation update)
SYNDECAN-4 PRECURSOR (RYUDOCAN CORE PROTEIN).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         198 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SDC4_MOUSE STANDARD;
035988;
15-FEB-2000 (Rel. 39, Created)
15-FEB-2000 (Rel. 39, Last seque
                                                                                                                                                                                EMBL, M22427; AAA41210.1; -.
EMBL, X07285; ACA30265.1; -.
EMBL, X61697; CAA43863.1; -.
PIR, S00876; S00876.
PIR, S11674, A31674.
HSSP, P09038; 1BFF.
PFAM, PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    115 118 H
154 AA; 17139 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              28.3%;
ilarity 54.4%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
STRAIN=C3H/AN, AND 129/SVJ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         111111111: 1
238 HYGQKAILFLPLPVSS 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     139 GPGQKAILFLPMSAKS 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE; 97420681.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BINDING
   E.G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           쉱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #4448B
```

```
;
9
                                                                                                                         CYTOPLASMIC (POTENTIAL).

O-LINKED (GLYCOSAMINOGLYCAN) (POTENTIAL).

O-LINKED (GLYCOSAMINOGLYCAN) (POTENTIAL).

O-LINKED (GLYCOSAMINOGLYCAN) (POTENTIAL).

4246963EC6A25915 CRC64;
                                                                                                                                                                                                                                                                                                    57 DDFELSGSGDLDDTEEPRPFPEVIEPLVPLDNHIPENAQPGIRVPSEPKELEENEVIPKR 116
                                                                                                                                                                                                                                             1 MAPACLLAPLILLLIGGFPLVPGESIRETEVIDPQDLLEGRYFSGALPDDEDA-G-G--S 56
                                                                                                                                                                                                                       Gaps
                                                                   sulfate; Transmembrane; Glycoprotein; Signal
                                                                                                                                                                                                                                                        ..
ن
                                                                                                                                                                                               Length 198;
                                                                                                                                                                                               Score 505; DB 1; Length 198
Pred. No. 5.48e-89;
13; Mismatches 12; Indels
                                                                                                     EXTRACELLULAR (POTENTIAL) POTENTIAL.
                                                                                          SYNDECAN-4
                                                                                                                                                                                                                                                                                                                                                                                                 Search completed: Tue Aug 29 15:57:12 2000 Job time: 24 secs.
                                                                                    198 E 145 E 170 P 198 C C 44 O - 64 21482 MW;
                             MGD; MCI:1349164; SDC4...
PFAM; PF01034; Syndecan; 1.
PROSITE; PS00964; SYNDECAN; 1.
        EMBL; D89571; BAA22135.1; -. EMBL; D89572; BAA22136.1; -.
                                                                                                                                                                                                 27.9%;
                                                                                                                                                                                                           larity 72.4%;
Conservative
                                                                    Heparan
                                                                                                                                                 62
64
198 AA;
                                                                                                                                                                                                            Local Similarity
les 89; Conser
                                                                    Proteoglycan;
                                                                                                                                                                                                                                                                                                                                         117 APS 119
                                                                                                                                                                                                                                                                                                                                                               116 ISP 118
                                                                                                     DOMAIN
TRANSMEM
                                                                                                                            DOMAIN
CARBOHYD
                                                                                                                                                   CARBOHYD
CARBOHYD
                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                 Query Match
                                                                              SIGNAL
                                                                                                                                                                                                            Best Loca
Matches
STETTTTTTTTT
                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                               ò
```

****	(TM)	****
*****		*****
*****	''	****
*******		*******
*******		*******
******		******
*******		*******
******	<u> </u>	******
***************************************	<u> </u>	***************************************

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

protein - protein database search, using Smith-Waterman algorithm MPsrch\_pp

Tue Aug 29 15:57:29 2000; MasPar time 21.71 Seconds 811.311 Million cell updates/sec Tabular output not generated.

Description: Perfect Score:

PAM 150 Gap 11 Scoring table:

Sequence:

225878 seqs, 69334122 residues Searched:

Post-processing:

Minimum Match 0% Listing first 45 summaries

1:sp\_archea 2:sp\_bacteria 3:sp\_fungi 4:sp\_human 5:sp\_invertebrate 6:sp\_mammal 7:sp\_mhc 8:sp\_organelle 9:sp\_phage 10:sp\_plant 11:sp\_rodent 12:sp\_unclassified 13:sp\_vertebrate 14:sp\_virus sptremb112 Databasė:

Mean 45.364; Variance 72.895; scale 0.622 Statistics:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

1   28.4   196   4   P78443   21   XD BASIC FIBROBLAST GROWT   1.14e-1.262   130   6 077767   BASIC FIBROBLAST GROWT   1.14e-1.262   130   6 077767   BASIC FIBROBLAST GROWT   1.14e-1.262   198   11 035988   RYUDOCAN CORE PROTEIN   3.14e-1.262   19.1   101   13   P79706   BASIC FOR (FRAGMENT)   3.14e-1.262   19.1   146   13   070559   FIBROBLAST GROWT FACT   1.15e-1.262   19.1   19.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1   10.1	result No.	Score	Query Match	Length DB	8	ID	Description	Pred. No.
28.2 130 6 077767 BASIC FIBROBLAST GROWT 1 27.9 198 110 035988 RYUDOCAN CORE PROTEIN 3 21.1 146 13 070559 FIBROBLAST GROWTH FACT 1 146 13 070559 FIBROBLAST GROWTH FACT 1 16 6 194 6 P07159 FIBROBLAST GROWTH FACT 15.1 22 11 060487 FIBROBLAST GROWTH FACT 15.1 22 11 054837 FIBROBLAST GROWTH FACT 16.1 054837 FIBROBLAST GROWTH FACT 14.9 60 4 016588 ACIDIC FIBROBLAST GROW 14.8 59 4 016089 ACIDIC FIBROBLAST GROW 14.8 59 4 016089 PUTATIVE FIBROBLAST GROW 14.2 243 13 09W6A1 FIBROBLAST GROWTH FACT 13.8 206 13 09W6A1 FIBROBLAST GROWTH FACT 13.8 206 13 09W6A2 FIBROBLAST GROWTH FACT 13.8 206 13 09W6A2 FIBROBLAST GROWTH FACT 13.7 192 4 095830 FIBROBLAST GROWTH FACT 13.7 245 13 09W6A2 FIBROBLAST GROWTH FACT 1		514	28.4	196	4	P78443	21 KD BASIC FIBROBLAST	2.07e-94
27.9 198 11 035988 RYUDOCAN CORE PROTEIN 3 21.1 101 13 P79706 BASIC FGF (FRAGENEW). 3 11 101 13 P79706 BASIC FGF (FRAGENEW). 3 11 11 11 060487 BASIC FIBROBLAST GROWTH FACT 15.9 12 13 042407 FIBROBLAST GROWTH FACT 15.9 12 13 042407 FIBROBLAST GROWTH FACT 21.1 058096 FFF-4B. 60 4 016588 ACIDIC FIBROBLAST GROWTH FACT 61 060096 A 016089 ACIDIC FIBROBLAST GROW HALS 196 13 090431 FIBROBLAST GROWTH FACT 61 13.8 196 13 090431 FIBROBLAST GROWTH FACT 13.8 120 4 099517 FIBROBLAST GROWTH FACT 13.8 120 4 099517 FIBROBLAST GROWTH FACT 13.7 192 4 099519 FIBROBLAST GROWTH FACT 13.7 192 4 099530 FIBROBLAST GROWTH FACT 13.7 192 4 095830 FIBROBLAST GROWTH FACT 13.7 245 13 090462 FIBROBLAST GROWTH FACT 13.7 245 5 076831 LET-756 PROTEIN.		511	28.2		9	797770	BASIC FIBROBLAST GROWT	1.14e - 93
21.1 101 13 P79706 BASIC FGF (FRAGENT). 3 19.1 146 13 Q07659 FIBROBLAST GROWTH FACT 17.1 1060487 BASIC FIBROBLAST GROWTH FACT 15.9 212 13 Q42407 FIBROBLAST GROWTH FACT 15.9 212 13 Q42407 FIBROBLAST GROWTH FACT 15.1 70 11 054837 FIBROBLAST GROWTH FACT 15.1 252 11 089096 FFF-4B. FFFROBLAST GROWTH FACT 614.9 60 4 Q16689 ACIDIC FIBROBLAST GROW 414.8 59 4 Q16689 ACIDIC FIBROBLAST GROW 414.3 196 13 Q9V431 FIBROBLAST GROWTH FACT 113.8 127 4 Q99537 FIBROBLAST GROWTH FACT 113.8 127 4 Q99537 FIBROBLAST GROWTH FACT 113.7 192 4 Q95830 FIBROBLAST GROWTH FACT 113.7 245 13 Q9W6A2 FIBROBLAST GROWTH FACT 112.5 425 5 076831 LET-756 PROTEIN.		505	27.9		1	035988	RYUDOCAN CORE PROTEIN	3.47e-92
19.1   146   13   007659   FIBROBLAST GROWTH FACT   17.3   115   10 660487   BASIC FIBROBLAST GROWTH FACT   15.9   212   13   042407   FIBROBLAST GROWTH FACT   15.1   70   11   054837   FIBROBLAST GROWTH FACT   15.1   222   11   089096   ACIDIC FIBROBLAST GROWTH FACT   14.9   60   4   016588   ACIDIC FIBROBLAST GROW   14.8   59   4   016689   ACIDIC FIBROBLAST GROW   14.3   196   13   097431   FIBROBLAST GROW   14.2   243   13   097431   FIBROBLAST GROWTH FACT   13.8   206   13   097608   FIBROBLAST GROWTH FACT   13.8   206   13   097608   FIBROBLAST GROWTH FACT   13.7   192   4   095830   FIBROBLAST GROWTH FACT   13.7   245   13   097608   FIBROBLAST GROWTH FACT   13.7   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   245   2		382	21.1	101	13	P79706	BASIC FGF (FRAGMENT).	3.14e-62
17.3   115   11   060487   BASIC FIBROBLAST GROWTH 6   194   6   P79150   FERATILOCYTE GROWTH FA 3   15.1   10   10   10   10   10   10   10		346	19.1	146	13	007659	FIBROBLAST GROWTH FACT	1.15e-53
16.6   194   6   P79150   KERATINOCYTE GROWTH FA     15.9   212   13   042407   FIBROBLAST GROWTH FACT     15.1   10   10   049096   FIBROBLAST GROWTH FACT     15.1   252   11   089096   FHF-4B.     14.9   60   4   016688   ACIDIC FIBROBLAST GROW     14.8   196   13   094431   PUTATIVE FIBROBLAST GROW     14.2   243   13   094831   FIBROBLAST GROWTH FACT     13.8   127   4   099517   FIBROBLAST GROWTH FACT     13.7   192   4   095830   FIBROBLAST GROWTH FACT     13.7   245   13   0946A2   FIBROBLAST GROWTH FACT     13.8   245   5   076831   LET-756 PROTEIN.      14.8   14.8   14.8   14.8   14.8   14.8     15.8   15.8   14.8   14.8   14.8     15.8   15.8   14.8   14.8   14.8     15.9   15.8   15.8   14.8   14.8     15.9   15.8   15.8   15.8   14.8     15.9   15.8   15.8   15.8     15.9   15.8   15.8   15.8     15.9   15.8   15.8   15.8     15.9   15.8   15.8   15.8     15.9   15.8   15.8   15.8     15.9   15.8   15.8     15.9   15.8   15.8     15.9   15.8   15.8     15.9   15.8   15.8     15.9   15.8   15.8     15.8   15.8   15.8     15.8   15.8   15.8     15.8   15.8   15.8     15.8   15.8   15.8     15.8   15.8   15.8     15.8   15.8   15.8     15.8   15.8   15.8     15.8   15.8   15.8     15.8   15.8   15.8     15.8   15.8   15.8     15.8   15.8   15.8     15.8   15.8   15.8     15.8   15.8   15.8     15.8   15.8   15.8     15.8   15.8   15.8     15.8   15.8   15.8     15.8   15.8   15.8     15.8   15.8   15.8     15.8   15.8   15.8     15.8   15.8   15.8     15.8   15.8   15.8     15.8   15.8   15.8     15.8   15.8   15.8     15.8   15.8   15.8     15.8   15.8   15.8     15.8   15.8   15.8     15.8   15.8   15.8     15.8   15.8   15.8		313	17.3	115	:1	060487	BASIC FIBROBLAST GROWT	6.33e-46
15.9   212   13   042407   FIBROBLAST GROWTH FACT   15.1   70   11   054837   FIBROBLAST GROWTH FACT   15.1   70   11   054837   FIBROBLAST GROWTH FACT   14.9   60   4   016588   ACIDIC FIBROBLAST GROW   14.3   196   13   09W6A1   FIBROBLAST GROW   14.2   243   13   09W6A1   FIBROBLAST GROWTH FACT   13.8   206   13   09VGDB   FIBROBLAST GROWTH FACT   13.7   192   4   095830   FIBROBLAST GROWTH FACT   13.7   245   13   09W6A2   FIBROBLAST GROWTH FACT   13.8   245   5   076831   LET-756 PROTEIN.		301	16.6	194	ø	P79150	KERATINOCYTE GROWTH FA	3.85e-43
15.1   70   11   054837   FIBROBLAST GROWTH FACT   6   15.1   252   11   089096   FHF-4B.   6   14.9   6   4   016588   ACIDIC FIBROBLAST GROW   14.8   59   4   016689   ACIDIC FIBROBLAST GROW   14.2   243   13   09431   FIBROBLAST GROWTH FACT   13.8   206   13   09517   FIBROBLAST GROWTH FACT   13.8   206   13   09510   FIBROBLAST GROWTH FACT   13.7   192   4   095830   FIBROBLAST GROWTH FACT   13.7   245   13   094042   FIBROBLAST GROWTH FACT   13.7   245   25   076831   LET-756 PROTEIN.   3		289	15.9	212	13	042407		2.24e-40
15.1   252   11   089096   FHF-4B.   6   4   016588   ACIDIC FIBROBLAST GROW   14.8   5   4   016089   ACIDIC FIBROBLAST GROW   14.3   196   13   09YH31   PUTATIVE FIBROBLAST GROWTH FACT   13.8   127   4   099517   FIBROBLAST GROWTH FACT   13.8   206   13   09YGD8   FIBROBLAST GROWTH FACT   13.7   192   4   095830   FIBROBLAST GROWTH FACT   13.7   245   13   09W6A2   FIBROBLAST GROWTH FACT   13.7   245   3   09W6A2   FIBROBLAST GROWTH FACT   13.7   245   3   09W6A2   FIBROBLAST GROWTH FACT   13.7   245   5   076831   EET-756 PROPIEN.   3		274	15.1	70	11	054837	GROWTH	6.00e-37
14.9   60   4   01658  ACIDIC FIBROBLAST GROW   4   14.8   59   4   016089   ACIDIC FIBROBLAST GROW   14.8   59   4   016089   ACIDIC FIBROBLAST GROW   14.2   243   13   09W6A1   FIBROBLAST GROWTH FACT   4   099517   FIBROBLAST GROWTH FACT   13.8   206   13   09YGD8   FIBROBLAST GROWTH FACT   13.7   192   4   095830   FIBROBLAST GROWTH FACT   13.7   245   13   09W6A2   FIBROBLAST GROWTH FACT   13.5   245   5   076831   LET-756 PROPIENT   13.5   12.5   5   076831   LET-756 PROPIENT   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5   13.5		274	15.1	. 252	7	960680	FHF-4B.	6.00e-37
14.8   59 4   016089   ACIDIC FIBROBLAST GROW   14.3   196   13   09YH31   PUTATIVE FIBROBLAST GR   14.2   243   099GA1   FIBROBLAST GROWTH FACT   13.8   206   13   09YGD8   FIBROBLAST GROWTH FACT   13.7   192   4   095830   FIBROBLAST GROWTH FACT   13.7   245   13   09YGD8   FIBROBLAST GROWTH FACT   13.5   245   5   076831   LET-756 PROTEIN.   3		270	14.9	09	4	016588	ACIDIC FIBROBLAST GROW	4.86e-36
14.3     196     13     09YH31     PUTATIVE FIBROBLAST GR     8       14.2     243     13     09W6A1     FIBROBLAST GROWTH FACT     4       13.8     206     13     09YGD8     FIBROBLAST GROWTH FACT     1       13.7     192     4     095830     FIBROBLAST GROWTH FACT     4       13.7     245     13     09W6A2     FIBROBLAST GROWTH FACT     4       13.7     245     13     09W6A2     FIBROBLAST GROWTH FACT     4       13.7     245     13     09Y6A3     FIBROBLAST GROWTH FACT     4       12.5     425     5     076831     LET-756 PROTEIN     3		269	14.8	59	4	016089		8.19e-36
14.2     243     13     99W6A1     FIBROBLAST GROWTH FACT     4       13.8     127     4     499517     FIBROBLAST GROWTH FACT     9       13.7     192     4     095830     FIBROBLAST GROWTH FACT     4       13.7     245     13     09W6A2     FIBROBLAST GROWTH FACT     4       13.7     245     13     09W6A2     FIBROBLAST GROWTH FACT     4       13.7     245     13     09W6A2     FIBROBLAST GROWTH FACT     4       12.5     425     5     076831     LET-756 PROTEIN     7		260	14.3	196	13	Q9YH31	PUTATIVE FIBROBLAST GR	8.83e-34
13.8 127 4 099517 FIBROBLAST GROWTH FACT 9 13.8 206 13 09YGD8 FIBROBLAST GROWTH FACT 1 13.7 192 4 095830 FIBROBLAST GROWTH FACT 4 13.7 245 13 09W6A2 FIBROBLAST GROWTH FACT 1 13.0 200 13 P79925 FIBROBLAST GROWTH FACT 1 12.5 425 5 076831 LET-756 PROTEIN. 3		257	14.2	243	13	Q9W6A1		4.17e-33
13.8 206 13 09YGD8 FIBROBLAST GROWTH FACT 1 13.7 192 4 095830 FIBROBLAST GROWTH FACT 4 13.7 245 13 09W6A2 FIBROBLAST GROWTH FACT 4 13.0 200 13 P79925 FIBROBLAST GROWTH FACT 1 12.5 425 5 076831 LET-756 PROTEIN.		251	13.8	127	4	099517	GROWTH	9.22e-32
13.7 192 4 095830 FIBROBLAST GROWTH FACT 4 13.7 245 13 09906A2 FIBROBLAST GROWTH FACT 1 13.0 200 13 P79925 FIBROBLAST GROWTH FACT 1 12.5 425 5 076831 LET-756 PROTEIN.		250	13.8	3 206	13	Q9YGD8	GROWTH	1.54e-31
13.7 245 13 Q9W6A2 FIBROBLAST GROWTH FACT 4 13.0 200 13 P79925 FIBROBLAST GROWTH FACT 1 12.5 425 5 076831 LET-756 PROTEIN. 3		248	13.7	, 192	4	095830	GROWTH	4
13.0 200 13 P79925 FIBROBLAST GROWTH FACT 1 12.5 425 5 076831 LET-756 PROTEIN. 3		248	13.7	245	13	Q9W6A2	GROWTH	4.31e-31
12.5 425 5 076831 LET-756 PROTEIN. 3.		236	13.0	200	13	P79925	GROWTH	1.98e-28
		226	12.5	425	Ŋ	076831	LET-756 PROTEIN.	3.10e-26

g δλ

5.12e-26	1.40e-25	2.31e-25	2.80e-24	2.04e-23	1.48e-22	3.95e-22	1.98e-20	3.23e-20	1.05e-17	1.05e-17	6.50e-18	4.38e-17	7.56e-12	1.13e-05	2.76e-04	1.31e-03	2.81e-03	5.98e-03	1.83e-02	1.26e-02	1.26e-02	1.26e-02	7.86e-02	5.48e-02
KERATINOCYTE GROWTH FA	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	FGF HOMOLOG.	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	R33683_2.	FIBROBLAST GROWTH FACT	FGF-ACMNPV ORF32.	BASIC FIBROBLAST GROWT	BASIC FIBROBLAST GROWT	FGF-19.	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	CONSERVED PROTEIN.	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	CYTOCHROME.	NUCLEOSOME ASSEMBLY PR	DENSE GRANULE PROTEIN	C36E8.4 PROTEIN.	SENSORY HISTIDINE KINA	MYELOBLAST KIAA0252 (F	211AA LONG HYPOTHETICA	HYPOTHETICAL 27.5 KD P
077561	969060	057341	P91672	014915	042278	060371	Q9YMH2	092401	000527	016443	095750	097573	035340	027154	062682	P79685	007819	088701	076215	018501	Q9ZEP3	092541	Q9YEE7	073554
9	13	13	Ŋ	4	13	4	14	14	4	4	4	9	1	7	9	13	~	11	വ	S	~	4	П	14
74	204	210	770	244	210	129	285	182	114	114	. 216	73	78	822	82	86	384	375	193	206	507	664	211	243
12.4	12.3	12.2	12.0	11.7	11.5	11.4	11.0	10.9	10.3	10.3	10.3	10.1	8.7	6.8	9.4	6.2	6.1	0.9	9.8	9.8	5.8	5.8	5.6	2.6
225	223	222	217	213	209	207	199	198	186	186	187	183	157	124	116	112	110	108	105	106	106	106	101	102
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

## ALIGNMENTS

; 6

Gaps

6

Length 198; Indels

셤

셤 ð

```
57 DDFELSGSGDLDDTEEPRPFPEVIEPLVPLDNHIPENAQPGIRVPSEPKELEENEVIPKR 116
                                                                                                                                                                                                                                                                                                                              1 MAPACLLAPLLLLLLGGFPLVPGESIRETEVIDPQDLLEGRYFSGALPDDEDA-G-G--S 56
                                                                          Transmembrane; Glycoprotein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TISSUE-EKBRYO;
SUZUKI A.S., TABATA T., SAKAGUCHI K., TAKABATAKE T., TAKESHIMA K.,
KANEDA T.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 PKRLYCKNGGFFLRINSDGKVDGAREKSDSYIKLQLQAEERGVVSIKGVCANRYLAMKDD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "Serial expression of the genes in a mesodermalizing ectoderms
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASIC FGF (FRAGMENT).
Cynops pyrthogaster (Japanese common newt).
Elwaryota; Metazoa; Chordata; Craniata; Vertebrata; Amphibia;
Batrachia; Caudata; Salamandroidea; Salamandridae; Cynops.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   early Cynops gastrula.";
Submitted (NOV-1996) to the EMBL/GenBank/DDBJ databases.
EMBL; D89443; BAA13958.1; -.
HSSP; P09038; 2BFH.
PROSITE; PS00247; HBGF_FGF; 1.
PROSITE; PS00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61 GRLMALKWITDECFFFERLESNNYNTYRSRKYSD--WYVALKR 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-MAY-1997 (TrEMBLrel. 03, Created)
01-MAY-1997 (TrEMBLrel. 03, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
                                                                                                                                                               Score 505; DB 11; I
Pred. No. 3.47e-92;
13; Mismatches 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 382; DB 13;
Pred. No. 3.14e-62;
18; Mismatches 28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           101 AA; 11907 MW; 1CD93BB0 CRC32;
                                                                                                            24 198 POTENTIAL.
198 AA; 21482 MW; FC67B0E5 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        146 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             101
EMBL; D89571; BAA22135.1; -.
EMBL; D89572; BAA22136.1; -.
PROSITE; PS00964; SYNDECAN; 1.
PFAM; PF01034; Syndecan; 1.
Signal; Proteoglycan; Heparan sulfate; SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-NOV-1996 (TrEMBLrel. 01,
01-NOV-1996 (TrEMBLrel. 01,
01-NOV-1999 (TrEMBLrel. 12,
FIBROBLAST GROWTH FACTOR.
                                                                                                                                                                  27.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     21.1%;
                                                                                                                                                                               Local Similarity 72.4%;
les 89; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    larity 53.4%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
nes 55; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                    117 APS 119
                                                                                                                                                                                                                                                                                                                                                                                                                    116 ISP 118
                                                                                                                               SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE
                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LT 5
Q07659
Q07659;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            T 4
P79706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              P79706;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BFGF.
                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEPTER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           [1]
SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
STRAIN-C3HARN, AND 1295VJ;
MEDLINE; 97420681.
TSUZUKI S., KOJINA T., KATSUMI A., YAMAZAKI T., SUGIURA I., SAITO H.;
"Molecular cloning, genomic organization, promoter activity, and
tissue-specific expression of the mouse ryudocan gene.";
J Biochem. 122:17-24(1997).
-! FUNCTION: CELL SURFACE PROTEOGLYCAN THAT BEARS BOTH HEPARAN
SULFATE AND CHONDROITIN SULFATE AND THAT LIRKS THE CYTOSKELETON TO
THE INTERSTITIAL MATRIX. BINDS BASIC FIBROBLAST GROWTH FACTOR.
                      123 YLAMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYT--SWYVALKRTGQYKLGSKT 180
                                         122 YKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYLAM 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61 KEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGPKTGPGQ 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 FKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYLAM 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mammalia;
Mus.
                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Carnivora; Fissipedia; Canidae; Canis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 511; DB 6; Length 130;
Pred. No. 1.14e-93;
21; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                    TISSUE-ADRENAL GLAND;
TROCHTA O.A., JACOBS R.M., LAMARRE J.;
"The role bFGF in canine Hemangiosarcoma.";
Submitted (APR-1998) to the EMBL/GenBank/DDBJ databases.
EMBL, AF060562; AAC35912.1;
HSSP; P09038; 1BFF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mus musculus (Mouse).
Edvaryota; Metazoa; Chordata; Craniata; Vertebrata;
Eutheria; Rodenta; Sciurognathi; Muridae;
                                                                                                                                                                                                                                    01-NOV-1998 (TrEMBLrel. 08, Created)
01-NOV-1998 (TrEMBLrel. 08, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   130 130 130 14902 MW; DB6A90A4 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      198 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-JAN-1998 (TrEMBLrel. 05, Created)
01-JAN-1998 (TrEMBLrel. 05, Last seq
01-NOV-1999 (TrEMBLrel. 12, Last anno
                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RYUDOCAN CORE PROTEIN PRECURSOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PROSITE; PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 28.2%;
Best Local Similarity 55.3%;
Matches 73; Conservative
                                                                                         181 GPGQKAILFLPMSAKS 196
                                                                                                                PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRELIMINARY;
                                                                                                                                                                                                                                                                                                                            Canis familiaris (Dog)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                119 KAILFLPMSAKS 130
                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NON_TER
SEQUENCE
                                                                                                                                                                                 LT 2
077767
077767;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               nr 3
035988
035988;
```

NON\_TER

셤 ò ò

ST FT DR RET BE SO ST FT BE SO

of

..

Indels

Length 101;

embryo."

Matches

셤

g

ô

õ

స్పేద క

```
CANATAN H., CHANG W.Y., SUGIMOTO Y., SHIDAIFAT F., KULP S.K.,
BRUEGGEMETER R.W., LIN Y.C.;
"Keratinocyte growth factor (KGF/FGF-7) has a paracrine role in canine
prostate: molecular cloning of mRNA encoding canine KGF.";
DNA Cell Biol. 15:247-254(1996).
EMBL: 9080801, AB38972.1;
HSSP: P05230; 2AFG.
PROSITE: PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Archosauria; Aves;
Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OHUCHI H., NAKAGAWA T., YAMAMOTO A., ARAGA A., OHTA T., ISHIMARU Y., YOSHIOKA H., KUWANA T., NOHNO T., YAMASAKI M., ITOH N., NOJI S.; "The mesenchymal factor, FGF10, initiates and maintains the outgrowth of the chick limb bud through interaction with FGF8, an apical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          69 LECRTQ-WYLRIDKRGKVKGTQEMKNSYNIMEIRTVAVGIVAIKGVESEYYLAMNKEGKL 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   128 YAKKECNEDCNFKELILENHYNTYASAKWTHSGGEMFVALNQKGVPVRGKKTKKEQKTAH 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    82 RKRKL-Y-SYNKYFLKIEKNGKVSGTKKENCPFSILEITSVEIGVVAVKSIKSNYYLAMN 139
                                                                                                                                                           Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Carnivora; Fissipedia; Canidae; Canis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 301, DB 6; Length 194
Pred. No. 3.85e-43;
28; Mismatches 47; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 289; DB 13; Length 21
Pred. No. 2.24e-40;
26; Mismatches 51; Indels
                                                                              Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                               PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFFGF.
SEQUENCE 194 AA; 22476 MW; 2B71A8ED CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     212 AA; 23631 MW; C8AB1883 CRC32;
                        194 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     212 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Created)
                                                            Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ectodermal factor.";
Development 124:2235-2244(1997).
ULT 7
P79150
P79150
01-MAY-1997 (TEMBLEL) 03, Cr
01-MAY-1997 (TEMBLEL) 03, La
01-MAY-1997 (TEMBLEL) 12, La
KERATINGCYTE GROWTH FACTOR.
Canis familiaris (Dog).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-JUN-1998 (TrEMBLrel. 06, 01-NOV-1999 (TrEMBLrel. 12, FIBROBLAST GROWTH FACTOR 10. Gallus gallus (Chicken).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   O42407;
01-JAN-1998 (TrEMBLrel. 05,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              16.6%;
38.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ouery Match
Best Local Similarity 39.1%;
Matches 52; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; D86333; BAA24945.1; HSSP; P03968; 1BAR.
PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local Similarity 38.6%;
Matches 49; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRINTS; PR00263; HBGFFGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRELIMINARY;
                                                                                                                                                                                                                 SEQUENCE FROM N.A. MEDLINE; 96226403.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE; 97330690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          111:::
246 FLPLPVS 252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  188 FLPMAIT 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JT 8
042407
                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ä
                                                                                                                                                                                                                                                      MITRANI E., GRUENBAUM Y., SHOHAT H., ZIV T.; "Fibroblast growth factor during mesoderm induction in the early chick
                    Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Archosauria; Aves;
Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    45 ERVSAMVKLQLQAEERGVVSIKGVSANRFLAMKEDGRLLALKCATEECFFFERLESNNYN 104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 GFFLRIHPDGRVDGVREKTDPHIKHNFKPKA-EELCYQGSLSNRYLAMKEDGRLLASKCV 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                           and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 10, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
Cavia porcellus (Guinea pig).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia; Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.
                                                                                            MEDLINE; 93246053.

BORJA A.Z., ZELLER R., MEJJERS C.;

Expression of alternatively spliced bFGF first coding exons antlsense mRNAs during chicken embryogenesis.";

Dev. Biol. 157:110-118(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            17.3%; Score 313; DB 11; Length 115; 44.6%; Pred. No. 6.33e-46; vative 22; Mismatches 31; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 146;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TISSUE-PROSTATE;
RICCIARDELLI C.;
Submitted (JAN-1996) to the EMBL/GenBank/DDBJ databases.
EMBL; L75974, AAA85394.1; -.
HSSP; P09038; 2BFH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               105 TYRSRKYSD--WYVALKRTGQYKPGPKTGPGQKAILFLPMSAKS 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     210 TYISKKHAEKNWFVGLKKNGSCKRGPRTHYGGKAILFLPLPVSS 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19.1%; Score 346; DB 13; L4 48.1%; Pred. No. 1.15e-53; ative 20; Mismatches 32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60 IDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLG 98
                                                                                                                                                                                                                                                                                                                                                                                                                                                 146 AA; 16182 MW; 44C5274B CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NON_TER 1 1 1 SEQUENCE 115 AA; 13495 MW; 4B12914A CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT; 115 AA
                                                                                                                                                                                                                                                                                                                Development 109:387-393(1990).
                                                                                                                                                                                                                                                                                                                                                                                         PROSITE; PS00247; HBGF_FGF; 1. PFAM; PF00167; FGF; 1. PRINTS; PR00262; IL1HBGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROSITE; PS00247; HBGF_FGF; 1.
PFAM; PF00167; FGF; 1.
NON TER 1
                                                                                                                                                                                                                                                                                                                              EMBL; M95706; AAA48616.1; -. EMBL; X56804; CAA40139.1; -. HSSP; P09038; 2BFH.
                                                                                                                                                                                                               SEQUENCE OF 52-85 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                50; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
  gallus (Chicken)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 45; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                        90382254
                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
```

LT 6 060487 060487;

RESULT 1D 06 AC 06 DT 01 DT 01 DE BA

'n

3; Gaps

Length 194;

4

4:

Length 212;

g

ö

LT 9 054837 054837;

a ò

g ò

à

RESULT ID 05 AC 05 DT 01 DT 01

(پرنزر

```
139 YPSELFTPECKFKESVFENYYVIYSSMLYRQQESGRAWFLGLNKEGQVMKGNRVKKTKPA 198
128 LYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYLAMDTDGLL 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDILNE; 94069734.
ZHAO X.M., YEOH T.K., HIEBERT M., FRIST W.H., MILLER G.G.;
The expression of acidic fibroblast growth factor (heparin-binding growth factor-1) and cytokine genes in human cardiac allografts and cells.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE; 94069734.
ZHAO X.M., YEOH T.K., HIEBERT M., FRIST W.H., MILLER G.G.;
ZHAO STAM, YEOH T.K., HIEBERT M., FRIST W.H., MILLER G.G.;
"The expression of acidic fibroblast growth factor (heparin-binding growth factor-1) and cytokine genes in human cardiac allografts and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "An acidic fibroblast growth factor protein generated by alternate splicing acts.like an antagonist.";
J. Exp. Med. 175:1073-1080(1992).
EMBL; S67292; AAB29058.1;
EMBL; S67292; AAB46662.1;
HSSP; P05330; ZAXM-6662.1;
PFAM; PF00167; FGF; 1.
                                                                                                                           MEDLINE; 92202857.
LI Y.L., KHA H., GOLDEN J.A., MIGCHIELSEN A.A.J., GOETZL E.J.,
TURCK E.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 11

D 016588

C 016588

DT 01-NOV-1996 (TREMBLEEL. 01, Created)
DT 01-NOV-1996 (TREMBLEEL. 01, Last sequence update)
DT 01-NOV-1999 (TREMBLEEL. 12, Last annotation update)
DE 01-NOV-1999 (TREMBLEEL. 12, Last annotation update)
DE ACIDIC FIRENCEAST GROWTH FACTOR (FRGGMENT).
OC EUKARYOLA: Metazoa: Chordata: Craniata: Vertebrata; Mammo C Eutheria: Primates: Catarrhini: Hominidae: Homo.

RN SEQUENCE FROM N.A.
RN XMDLINE: 94069734.
RN ZHAO X.M., YEOH T.K., HIEBERT M., FRIST W.H., MILLER G., RT Trensplantation of acidic fibroblast growth factor (hepp growth factor-1) and cytokine genes in human cardiac all RN SEQUENCE FROM N.A.

RN ELIS."; AMBLINE: 92202857.
RN MEDLINE: 92202857.
RN MEDLINE: 94069734.
RN ALI Y.L., KHA H., GOLDEN J.A., MIGCHIELSEN A.A.J., GOETZ. RA II Y.L., KHA H., GOLDEN J.A., MIGCHIELSEN A.A.J., GOETZ. RA TURCK E.J.;
RN TURCK E.J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
ACIDIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19 PPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHTD 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 270; DB 4;
Pred. No. 4.86e-36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Transplantation 56:1177-1182(1993).
EMBL: S67294; AAB29059.1; -.
HSSP; P05230; 2AXM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     / Match
Local Similarity 90.0%;
nes 36; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                   199 AHFLPKPL 206
                                                                                                                                                                                                                                                                                      ||| |:
244 ILFLPLPV 251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   )LT 12
Q16089
Q16089;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT OF THE PROPERTY OF THE 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                       Q
                                                                                                                                                           δ
                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                80 LYCROG-YYLQMHPDGALDGTKDDSTNSTLFNLIPVGLRVVAIQGVKTGLYIAMNGEGYL 138
                                                                                                                                                               140 KKGKVYGSKEFNSDCKLKERIEENGYNTYASLNWKHNGRQMFVALNGRGATKRGQKTRRK 199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE; 98267141.
YAMAMOTO S., MIKAMI T., OHBAYASHI N., OHTA M., ITOH N.;
YAMAMOTO S., MIKAMI T., OHBAYASHI N., OHTA M., ITOH N.;
Structure and expression of a novel isoform of mouse FGF homologous factor (FHF)-4."
Blochim. Blochys. Acta 1398:38-41(1998).
EMBL; AB008908; BAA31544.1; --
EMBL; AB008907; BAA31543.1; --
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
   υ
..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ï
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Rattus norvegicus (Rat), and Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammali
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 252;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 70;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 274; DB 11; Length 70 Pred. No. 6.00e-37; 5; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 274; DB 11; Length 25
Pred. No. 6.00e-37;
26; Mismatches 49; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 26 LTERFNLPLGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQH 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-NOV-1998 (TrEMBLrel. 08, Created)
01-NOV-1998 (TrEMBLrel. 08, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-JUN-1998 (TrEMBLrel. 06, Created)
01-JUN-1998 (TrEMBLrel. 06, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PROSITE; PS00247; HBGP_FGF; 1.
PFAM; PF00167; FGF; 1.
SEQUENCE 252 AA; 28364 MW; 1DFD5B4B CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             70 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FIBROBLAST GROWTH FACTOR-1 (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15.1%;
82.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity 37.5%;
Matches 48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          37; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                          200 NTSAHFLPMVVMS 212
                                                                                                                                                                                                                                                                                                                                                      241 QKAILFLPLPVSS 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HSSP; P03968; 1BAR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TISSUE=BRAIN;
```

RESULT 10 ID 089096 AC 089096;

SO DRAFT READER OF COLOR OF CO

셤

Matches

셤 δ ö

Gaps

ö

Length 60; Indels

```
Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
OO 99
OO 90
                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ద
                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Archosauria; Aves;
Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        71 KRLRRLYCNVGIGFHLQVLPDGRIHGMHSES-RYSLLEISPVERGVVCMFGVQSGLFLAM 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    130 NSKGRLFGSKYFSDECKFKEMLLPNNYNAYESWRYPGM--YIALSKNGRAKKGNKVSPTM 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 260; DB 13; Length 196;
Pred. No. 8.83e-34;
31; Mismatches 48; Indels 4; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE, 99065510.
MEDLINE, 99065510.
MEDLINE, 99065510.
MEDNINE, SIMANDL B.K., FALLON J.F., NATHANS J.;
MINOZ-SANJUAN I., SIMANDL B.K., FALLON J.F., NATHANS J.;
MEXPLESSION of Chicken fibroblast growth factor homologous factor (FHF)-1 and of differentially spliced isoforms of FHF-2 during development and involvement of FHF-2 in chicken limb development.";
Development 126:409-421(1999).
EMBL; ARIO8754; AAD21575.1; -.
PROSITE; PS00247; HBGF_FGF; I.
SEQUENCE 243 AA; 27455 MW; A9E6E8CD CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                           01-MAY-1999 (TrEMBLrel. 10, Created)
01-MAY-1999 (TrEMBLrel. 10, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
01-NOTATIVE FIBROBLAST GROWTH FACTOR-4.
NOtophthalmus viridescens (Eastern newt) (Triturus viridescens).
Eukaryota: Metazoa: Chordata; Craniata: Vertebrata; Amphibia;
Batrachia; Caudata; Salamandroidea; Salamandridae; Notophthalmus.
                                                                                                                                                            ö
                                                                                                          Length 59,
                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                "Putative Newt Fibroblast Growth Factor-4.";
Submitted (OCT-1996) to the EMBL/GenBank/DDBJ databases.
EMBL, 916998, AAC98812.1; -. HSPP: P09038; 1BFF.
PROSITE; PS00247; HBGF_FGF; 1.
SEQUENCE 196 AA; 22033 MW; 455E08A3 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-NOV-1999 (TrEMBLrel. 12, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
FIBROBLAST GROWTH FACTOR 12 ISOFORM A.
                                                                                                       Score 269; DB 4; Le
Pred. No. 8.19e-36;
1; Mismatches 1;
                                                                                                                                                                                                            1C932B1D CRC32;
                                                                                                                                                                                                                                                                                                                                                                            PRT; 196 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             243 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-NOV-1999 (TrEMBLrel. 12, 01-NOV-1999 (TrEMBLrel. 12, 01-NOV-1999 (TrEMBLrel. 12,
                                                  59 AA; 6595 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity 34.6%;
Matches 44; Conservative
                                                                                                       / Match 14.8%;
Local Similarity 94.7%;
nes 36; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                              PRELIMINARY;
PFAM; PF00167; FGF; 1.
NON_TER 59 59
SEQUENCE 59 AA; 659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          [1]
SEQUENCE FROM N.A.
WEI Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                242 KAILFLP 248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          188 TVTHFLP 194
                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LT 14
09W6A1
09W6A1;
                                                                                                                                                                                                                                                                                                                                                                                                        Q9YH31;
                                                                                                                                                                                                                                                                                                                                                  л 13
09хн31
                                                                                                                                                          Matches
     8 F 8
                                                                                                                                                                                                                  윱
                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BARREFIRES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ద
```

```
ä,
                                                                                                                                                                                                     77 LF-SQQEYFLQMHPDGTIDGTKDENSDYTLFNLIPVGLRVVAIQGVKAGLYVAMNAEGYL 135
                                                                                                               . 136 YSSDVFTPECKFKESVFENYYVIYSSTLYRQQESGRAWFLGLNKEGQIMKGNRVKKTKPS 195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61 YSSDVFTPECKFKESVFENYYVVYSSTLYRQQESGRAWFLGLNKEGQIMKGNRVKKTKPS 1:0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   128 LYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYLAMDTDGLL 187
                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2 LF-SQQGYFLQMHPDGTIDGTKDENSDYTLFNLIPVGLRVVAIQGVKASLYVAMNGEGYL 60
                                              'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota, Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Primates; Catarrhini; Hominidae; Homo.
    DB 13; Length 243;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A. COULIER F., PONTAROTII P., ROUBIN R., HARTUNG H., GOLDFARB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 127;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 251; DB 4; Length 127
Pred. No. 9.22e-32;
30; Mismatches 48; Indels
                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                               01-MAY-1997 (TrEMBLrel. 03, Created)
1-MAY-1997 (TrEMBLrel. 03, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
FIBROBLAST GROWTH FACTOR 12 (FRAGMENT).
Score 257; DB 13; I
Pred. No. 4.17e-33;
31; Mismatches 48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1
127 127
127 AA; 14478 MW; 10E2842D CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                          127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Search completed: Tue Aug 29 15:58:33 2000 Job time : 64 secs.
                                                                                                                                                                                                                                                                                                                                                                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 J. MOI. Evol. 0:0-0(0).
EMBL; Z70276; CAA94240.1; -.
HSSP; P03968; LAFC.
PROSITE; PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity 34.6%;
Matches 44; Conservative
                       Best Local Similarity 34.4%;
Matches 44; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PFAM; PF00167; FGF; 1.

NON_TER 127

NON_TER 127

SEQUENCE 127 AA; 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens (Human)
                                                                                                                                                                                                                                                                    196 SHFVPKPI 203
                                                                                                                                                                                                                                                                                                                244 ILFLPLPV 251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         244 ILFLPLP 250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121 SHFVPKP 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COULIER F., F
BIRNBAUM D.;
```

. , . 

4

******	(TM)	******
******		*******
*******	[]	******
***************************************		*************************************
********	''    <sub> </sub>	*******
*******		********
*******	'' ' 	*******
******	<u> </u>	******
****	·	****

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

protein - protein database search, using Smith-Waterman algorithm MPsrch\_pp

MasPar time 9.50 Seconds 700.535 Million cell updates/sec Tue Aug 29 16:06:12 2000; : 0

Labular output not generated.

>US-09-121-017B-23 (1-281) from US09121017B.pep 1980 I MAPARLFALLLFFVGGVAES.....PRTHYGQKAILFLPLFVSSD 281 Description: Perfect Score:

Sequence:

PAM 150 Gap 11 Scoring table:

188963 seqs, 23686106 residues

Searched:

Post-processing:

Minimum Match 0% Listing first 45 summaries

a-geneseq36 Database:

1:genesedp

Mean 33.230;

Statistics:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

scale 0.221

Variance 150.315;

#### SUMMARIES

Pred. No.	3.21e-78	3.21e-78	3.21e-78	3.21e-78	3.21e-78	3.21e-78	3.21e-78	3.21e-78	3.21e-78	3.21e-78	3.21e-78	3.21e-78	3.21e-78	3.21e-78	3.21e-78	3.21e-78	3.21e-78	3.21e-78	3.21e-78	3.21e-78		3.21e-78	3.98e-78
Description	Human acidic fibroblas	Human acidic Fibroblas	Human acid fibroblast	Human recombinant aFGF	Human acidic fibroblas	Sequence of human prot	Human acidic fibroblas	Human aFGF encoded by	Human beta-endothelial	Human beta-endothelial	Human endothelial cell	Human beta-endothelial	Human acidic fibroblas	FGF-1.	Sequence encoded by co	Fibroblast growth fact	Fibroblast growth fact	Fibroblast growth fact	Human endothelial cell	Human endothelial cell	Human bECGF encoded by	Human endothelial cell	Human alpha-endothelia
a	R25914	R34497	P90068	R74647	W04806	P70995	R10527	R05789	W92283	W04805	W06816	W75414	P94037	R70812	P70482	R80776	W53022	W75711	W75415	W92291	R05785	W06818	W75413
. B0	П	Н	Н	-	Н	Н	Н	Н	Н	Н	٦	ч	Н	Н	-1	Н	Н	Н	٦	Н	Н	-	
Length	140	140	140	140	140	140	141	151	154	154	154	154	155	155	155	155	155	155	155	155	165	168	134
Query Match	49.7	49.7	49.7	49.7	49.7	49.7	49.7	49.7	49.7	49.7	49.7	49.7	49.7	49.7	49.7	49.7	49.7	49.7	49.7	49.7	49.7	49.7	49.6
Score	984	984	984	984	984	984	984	984	984	984	984	984	984	984	984	984	984	984	984	984	984	984	983
of to	, 	7	Ю	4	Ŋ	ø	7	<b>6</b> 0	σ	10	11	12	13	14	15	16	17	18	19	50	21	22	23

3.98e-78	3.98e-78	4.22e-77	3.40e-77	5.54e-76	5.54e-76	2.48e-75	2.48e-75	7.26e-75	6.19e-74	6.19e-74	2.37e-72	4.50e-72	4.50e-72	4.50e-72	4.50e-72	4.50e-72	4.50e-72	8.55e-72	4.74e-71	4.74e-71	1.38e-70
Human alpha-endothelia	Human alpha-endothelia	Human endothelial cell	Fibroblast growth fact	9 N-terminal residue d	aFGF mutein #2.	Recombinant human Ala1	Human (Gly93) aFGF ana	Fibroblast growth fact	aFGF mutein #3.	12 N-terminal residue	Human acidic fibroblas	Bovine acidic fibrobla	Bovine recombinant aFG	Brain-derived acidic f	Bovine fibroblast grow	Bovine acidic Fibrobla	Human acidic fibroblas	Recombinant human muta	Recombinant bovine Ala	Bovine (Ala47,Gly93) a	Chimeric acid/basic fi
W92282	W04807	W06817	W71383	R11327	R25418	R25570	W00561	R65935	R25419	R11328	R05315	P90069	R74648	R13030	R65934	R34496	R25915	P90074	R25569	W00560	W01747
Н	Н	-1	Н	Н	Н	H	Н	-	Н	М	-	Н	Н	Н	Н	-1	-4	Н	н	-	Н
134	134	135	156	132	132	155	155	140	129	129	154	140	140	140	140	140	140	154	141	141	136
49.6	49.6	49.1	49.1	48.5	48.5	48.1	48.1	47.9	47.4	47.4	46.5	46.4	46.4	46.4	46.4	46.4	46.4	46.2	45.8	45.8	45.6
983	983	972	973	960	960	953	953	948	938	938	921	918	918	918	918	918	918	915	907	907	902
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

### ALIGNMENTS

Syncrostic antiviral composition contains BFGF and sulphated by polyaccharide for treating viral infections e.g. HSV-1 and -2, cytomegalovirus, HIV, influenza virus etc.

Pisclosure; Page 4; 20pp; English.

This sequence represents acidic fibroblast growth factor (aFGF).

This sequence in the acidic fibroblast growth factor (aFGF).

This sequence is found to have a greater antiviral activity than sequence 140 AA; 26-JAN-1993 (first entry)
Human acidic fibroblast growth factor.

Viral infections; viruses; FGF; herpes simplex virus; HSV-1; HSV-2;
herpes varicella; herpes zoster; cytomegalovirus; influenza;
human respiratory syncytial virus; Semliki Forest virus; HIV;
human immunodeficiency virus; Moloney Sarcoma virus. 30-JAN-1992; 101541. 31-JAN-1991; GB-002145. 09-JAN-1992; GB-000410. FARM ) FRMITALIA ERBA SRL CARLO. Battlstini C, Carminati P, Garofano L, Mazue G, Ungheri D; WPI; 92-260792/32. R25914 standard; peptide; 140 AA. Homo sapiens. EP-497341-A. R25914; 26-JAN-1993 05-AUG-1992 RESULT 

Gaps ö Length 140; Score 984; DB 1; Length 140 Pred. No. 3.21e-78; 1; Mismatches 0; Indels Query Match Best Local Similarity 99.3%; Matches 134; Conservative

ö

6 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 65 8 ò

g à

GOKALLFLPLPVSSD 140 126

g

R34497;

ô

```
147 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            66 AMDIDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 125
                                                           66 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 125
  147 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6 GNYKKPKLLÝCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         W04806;
29-DEC-1996 (first entry)
Human acidic fibroblast growth factor.
Endothelial cell growth factor; ECGF; blood vessel; regeneration; heparin-Sepharose affinity chromatography; probe; oligonucleotide; FGF; fibroblast growth factor: ss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          New recombinant human acidic fibroblast growth factor - used to promote cell growth, to promote wound healing, for vascular grafts and blood vessel repair.

Claim 2: Column 30: 25pp; English.
Oligonucleotides were synthesized on the basis of the amino acid sequence of boxina acidic fibroblast growth factor (aFFF) and used to produce a synthetic gene (given in Q88233) incorporating codons preferred by E. coli or mammalian cells, unique cloning sites, etc. This synthetic gene was mutagenized to obtain a gene encoding a human recombinant aFGF (R74647) having activity Sequence 140 AA;
                                                                                                                                                                                                                                                                                                                                                                                                      25-SEP-1995 (first entry)
Human recombinant aFGF.
Acidic fibroblast growth factor; aFGF; vulnerary; anglogenesis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 984; DB 1; Length 140 Pred. No. 3.21e-78; 1; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Linemeyer DL,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FGF; fibroblast growth factor; ss
Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JT 5
W04806 standard; Protein; 140 AA.
                                                                                                                                                                                                                                                                                                                   T
R74647 standard; protein; 140 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Kelly LJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             / Match 49.7%;
Local Similarity 99.3%;
pes 134; Conservative
                                                                                                                                                                         126 GOKAILFLPLPVSSD 140
                                                                                                                                                                                                          126 GOKAILFLPLPVSSD 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        267 GQKAILFLPLPVSSD 281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-884460.
US-054991.
US-190293.
US-654397.
US-765472.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           25-SEP-1991; US-765472
25-SEP-1992; US-951365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (MERI ) MERCK & CO INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gimenez-Gallego G,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 95-138983/18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens.
US5401832-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            24-DEC-1984;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12-SEP-1985;
30-MAY-1986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          04-JUN-1987;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      28-MAR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                08-FEB-199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                mitogen.
                                                                                                                                                                                                                                                                                                                                                                           R74647;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                 207
                                                                                                                                                                                                                                                                                                                   NAME OF THE STATE 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
  ò
                                                     g
                                                                                                                 ò
                                                                                                                                                                      셤
                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OS KW KE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        147 ANYKKPKLIYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         66 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JO-MAY-1991; 127435.

31-MAY-1990; JP-143388.

(TAKE) TAKEDA CHEM IND LTD.
WHI: 93-139564/17.

FOF mutein prepn. useful for therapy of burn or thrombosis - by rransformation of lymphocyte-contained animal cell by vector contg. DNA encoding FGF mutein Disclosure; Page 3; 23pp; Japanese.
The invention covers muteins of FGF (esp. bFGF) which contain at least one glycosylation site. The muteins can be used to treat burns and thrombosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGOYL 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Disclosure; page 4; 36pp; English.
Amino acid sequence of human acidic fibroblast growth
factor (aFGF). The patent claims mutant forms which have
increased biological activity with(out) heparin, and promote
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Thomas Jnr KA, Linemeyer DL;
WPI: 89-167092/23.
Mutant acidic fibroblast growth factor
- used for promoting repair of soft tissue, musculoskeletal
tissue or vascular or nerve tissue and plasminogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 984; DB 1; Length 140;
Pred. No. 3.21e-78;
1; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 984; DB 1; Length 140 Pred. No. 3.21e-78; 1; Mismatches 0; Indels
                                                                                                                                                                      06-AUG-1993 (first entry)
Human acidic Fibroblast Growth Factor.
aFGF; mutein; glycoslation site; glycoprotein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   p90068;
1-NOV-1989 (first entry)
Human acid fibroblast growth factor
Human acidic fibroblast growth factor; mutant.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   T
P90068 standard; protein; 140 AA.
                                                                                      I 2
R34497 standard; protein; 140 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 49.7%;
Best Local Similarity 99.3%;
Matches 134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 49.7%;
Best Local Similarity 99.3%;
Matches 134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    126 GQKAILFLPLPVSSD 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14-OCT-1988; 202306.
22-OCT-1987; EP-244431.
(MERI) Merck and Co.
267 GOKAILFLPLPVSSD 28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               140 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       140 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           activator prodn.
                                                                                                                                                                                                                                                                Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens
EP-319052-A.
                                                                                                                                                                                                                                                                                                                      30-MAR-1993.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cell growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                14-JUN-1989
```

RESULT

日と古田家

Sequence

qq ŏ 셤 ò g ò

हे<sub>रि</sub>ष्ठ

ö

0; Gaps

Length 140;

266

Sequence

셤

у

```
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            267
                                                                                                                                                                                                                                                                                                                      Key
                                                                                                                                                                                                                     셤
                                                                ò
                                                                                           g
                                                                                                                        ò
                                                                                                                                                 셤
                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                      Groated, purified, biologically active bovine beta endothelial cell growth factor - useful to regenerate or treat damaged blood vessels bisclosure; Fig 8: Bapp: English.

Bovine beta-endothelial cell growth factor (beta-ECGF; W0399) having a mol.wt. of 20 kD can be purified at least 16300 fold from bovine brain using heparin-Sepharose affinity chromatography. ECGF is useful for, among other purposes, diagnostic applications and has potential in the treatment of damaged blood vessels or other endothelial cell-lined structures.

Human ECGF (737503) or fragments may be obtained using oligonucleotides (737504 and 737508 to 737509) whose design is based on the sequence of bovine alpha- and beta-ECGF.
                                                                                                                                                                                                                                                                                                                                                                                                              66 AMDIDGLLYGSQIPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRIHY 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  207 AMDTDGLLYGSQTPNEECLFLERLEENHYNTXISKKHAEKNWFVGLKKNGSCKRGPRTHY 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   13-JUN-1991 (first entry) Sequence of human proteinaceous factor (PFI) with mitogenic activity. Cell growth promoter; mitogen; vascularisation; wound healing. Homo saplens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mitogenic polypeptide isolated from human brain tissue - useful for increasing vascular effect in eg wound healing, or generating endothelial cell linings for vascular prostheses, etc. claim 3; Page 1; 31pp; English.
The PF of the invention was obtd. from human brain tissue. It has a mol. wt. of 15,200-16,500 (pref. 15,616-16,056) and has a high affinity for heparin. PFl and fragments are useful for promoting the growth of mesoderm-derived cells or neuroectoderm-derived cells and generating endothelial cell linings for vascular prostheses (all claimed). The polypeptides are useful for increasing vascularisation.
                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                        Score 984; DB 1; Length 140;
Pred. No. 3.21e-78;
1; Mismatches 0; Indels
                                                                                                     (RHON ) RHONE POULENC RORER PHARM INC. Burgess W, Maciag T; WPI; 96-412132/41.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          P70995 standard; protein; 140 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   14-0CT-1987, 301969.
06-WAR-1986; US-838096.
(HARD ) HARVARD COLLEGE.
LObb RR, Harper JW, Strydom DJ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /label* Asp-OH
                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity 99.3%;
Matches 134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        126 GORAILFLPLPVSSD 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        267 GQKAILFLPLPVSSD 281
                                   03-MAR-1986; US-835594.
18-DEC-1987; US-134499.
29-APR-1991; US-693079.
27-NOV-1991; US-799859.
03-NOV-1994; US-334884.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_difference 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 87-285995/41
                                                                                                                                                 N-PSDB; T37503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EP-241136-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14-0CT-1987
                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         P70995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9
82558
                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                             207 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 266
                                                                                                                   66 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           67 AMDIDGLLYGSQIPNEECLFLERLEENHYNIYISKKHAEKNWFVGLKKNGSCKRGPRIHY 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   65
                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   peptides derived from the protein, esp. from A-D can be used to as antigens to produce anti-aFGF antibodies. The peptides must comprise 8-10 continuous AAs from A or B (claims 5 and 6 resp.), 7-10 continuous AAs from C (claim 7), or 8-9 continuous AAs from D (claim 8). The Abs can be used for immunochemically measuring aFGF, and for purifying aFGF. They are useful as reagents in the diagnosis of various cancers or diseases of the CNS. Purified aFGF Sequence 141 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL
                                                                                          6 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL
                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Anti-acid antibody, for cancer diagnosis, etc. - is obtd. by using complex of partial peptide(s) of acid fibroblast growth factor and protein as antigen.

Disclosure; Fig 1: 19pp; Japanese.

The was deduced from a gene used to produce recombinant aFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 141;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 y Match 49.7%; Score 984; DB 1; Length 141 Local Similarity 99.3%; Pred. No. 3.21e-78; nes 134; Conservative 1; Mismatches 0; Indels
                                              Indels
Best Local Similarity 99.3%; Pred. No. 3.21e-78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             715-APR-1991 (first entry)
Human acidic fibroblast growth factor gene.
aFGF; antibody; antigen; cancer; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                      R10527 standard; Protein; 141 AA.
R10527;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20-DEC-1990.
03-UUL-1989; 172542.
04-UUL-1989; UP-166275.
03-UUL-1999; UP-172542.
(TAKE ) TAKEDA CHEMICAL IND KK.
WPI; 91-040150/06.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2. .12
/label= A
56. .67
/label= B
104. .114
/label= C
132. .141
/label= D
                                                                                                                                                                                                                                                                                  126 GQKAILFLPLPVSSD 140
                                                                                                                                                                                                                                                                                                          267 GOKAILFLPLPVSSD 281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        127 GOKAILFLPLPVSSD 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N-PSDB; Q10399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  J02306996-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      region
```

Drohan WN, Jaye M, Maciag T;

```
RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 2: Fig 3a: 120 microporates useful restriction sites at frequent intervals to facilitate the cassette mutagenesis of selected regions. Also included are flanking sites to simplify the incorporation of the gene into any expression system. The arch more accordent of the gene into any expression system. The arch mol. acts in a cascade effect to control endothelial cell activity either co-ordinately through synergistic effects or via independent routes. The regulation of endothelial cells is essential for the protection of arteries, velus and capillaries from the effect of thrombogenesis. Their stimulation and control by these factors is also thought to be important in the development of tumours and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   71 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20-APR-1999 (first entry)
Human beta-endothelial cell.growth factor (ECGF) protein sequence.
Endothelial cell growth factor; ECGF; cleavable; recombinant; repair;
regenerate; blood vessel; endothelial cell; human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                           ဌ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                       misc_difference 146. .147 /note= "sites corresp. to two stop codons of
                                                                                                                                                                                                                                                                                                                                                                                                               Gene encoding human acidic fibroblast growth factor -
incorporates useful restriction sites at frequent intervals
facilitate cassette mutagenesis of specified regions.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 151;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0; Indels
                                                               Human aFGF encoded by synthetic gene.
Acidic fibroblast growth factor; aFGF; thrombogenesis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 984; DB 1; 1
Pred. No. 3.21e-78;
1; Mismatches 0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (RHON ) RHONE-POULENC RORER PHARM INC.
                                                                                                                                                     Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .T 9
W92283 standard; protein; 154 AA.
                                                                                                                                                                                                                    the DNA sequence'
R05789 standard; Protein; 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       49.78;
                                             (first entry)
                                                                                                                                                                                                                                                                                                                            (BRBI-) Brit Bio-Tech Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity 99.3%;
les 134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    131 GOKAILFLPLPVSSD 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            267 GOKAILFLPLPVSSD 281
                                                                                                            atherosclerosis; tumors.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                840088.
US-743261.
US-835594.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-334884.
US-472964.
US-840088.
                                                                                                                                                                                                                                                                                 08-AUG-1988; 018775.
08-AUG-1988; GB-018775.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-134499
                                                                                                                                                                                                                                                                                                                                                Davies JA, Johnson ID;
WPI; 90-109882/15.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-799859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              151 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          atherosclerosis.
                                                                                                                                                                                                                                                                                                                                                                                                003873
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens.
US5849538-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11-APR-1997;
04-NOV-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             03-MAR-1986;
18-DEC-1987;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           29-APR-1991;
                                        22-AUG-1990
                                                                                                                                                                                                                                           3B2223496-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        07-JUN-1995
                                                                                                                                                                                                                                                               -APR-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                15-DEC-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             27-NOV-199
                                                                                                                                   Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     03-NOV-1
                                                                                                                                                                                                                                                                                                                                                                                           N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             W92283;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                        $$66888888888888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HOD DE PRESENTANT PROPERTOR PRESENTANT PRESE
  윰
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ó
```

```
DNA encoding a cleavable signal peptide and an endothelial cell growth factor - useful for producing recombinant endothelial cell growth factor proteins claim 1; Column 16; 23pp; English.

This represents the amino acid sequence of human beta-endothelial cell growth factor (ECGF). The invention is directed to DNA encoding alpha-or beta-ECGF and plasmids comprising the DNA sequences. The DNA encodes a cleavable signal peptide and an ECGF, where removal of the signal peptide yields a mature form of the ECGF. The DNA is used to produce recombinant ECGF proteins, which can be used in treatments to repair or regenerate blood vessels or other structures lined with endothelial cells.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Isolated, purified, biologically active bovine beta endothelial cell growth factor - useful to regenerate or treat damaged blood vessels bisclosure; Fig 8: 28pp; English and the beta endothelial cell growth factor (beta-ECGF; W0399) having a mol.wt. of 20 kD can be purified at least 16300 fold from bovine brain using heparin. Sepharose affinity chromatography. ECGF is useful for, among other purposes, diagnostic applications and has potential in the treatment of damaged blood vessels or other endothelial cell-lined structures. Human ECGF (137503) or fragments may be obtained using oligonucleotides (137504 to and 137508 to 137509) whose design is based on the sequence of bovine alpha- and beta-ECGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          80 AMDIDGLLYGSQIPNEECLFLERLEENHYNIYISKKHAEKNWFVGLKKNGSCKRGPRIHY 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 79.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      W04805;
9-DEC-1996 (first entry)
Human beta-endothelial cell growth factor.
Endothelial cell growth factor; ECGF; blood vessel; regeneration;
heparin-Sepharose affinity chromatography; probe; oligonucleotide;
FGF; fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              207 AMDIDGLLYGSQIPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ó
                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 984; DB 1; Length 154; Pred. No. 3.21e-78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 984; DB 1; I
Pred. No. 3.21e-78;
1; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                03-MAR-1986; US-835594.
18-DEC-1987; US-114499.
29-APR-1991; US-6935079.
27-NOV-1994; US-759859.
03-NOV-1994; US-334884.
(RHON ) RHONE POULENC RORER PHARM INC. Burgess W, Maciag T; WPI; 96-41213741.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          W04805 standard; Protein; 154 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity 99.3%;
Matches 134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         49.78;
Similarity 99.38;
.34; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                267 GQKAILFLPLPVSSD 281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 140 GOKAILFLPLPVSSD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       03-MAR-1986; 835594
Burgess W, Drohan WPI; 99-069734/06.
                                                                                                                                                                                                                                                                                                                                                                                154 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  154 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  03-SEP-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US5552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
```

셤

g

ò

ö

OK DE DE

```
cell growth factor polypeptides
Claim 1; Column 16; 23pp; English.
This sequence represents the amino acid sequence of the mature human
beta-endothelial cell growth factor (b-ECGF). This amino acid sequence
is identical to the alpha-ECGF but the beta sequence contains an extra
20 N terminal amino acids. The sequence was isolated from a human brain
stem cell cDNA library using a probe designed based on fragments of the
bovine ECGF (see W75416-W75418). The ECGF protein can be used in
compositions for promoting wound healing. ECGF is also used to grow
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 79
                                                                                                                                                                                                          Compositions for promoting wound healing - containing endothelial
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 984; DB 1; I
Pred. No. 3.21e-78;
1; Mismatches 0;
                                                                                                                                                  (RHON ) RHONE-POULENC RORER PHARM INC.
Burgess W, Drohan WN, Jaye M, Maciag T;
WPI; 98-594032/50.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (BIOT-) Biotechn Res Assoc.
Fiddes JC. Abraham JA, Protter A;
WPI: 89-009785/02.
N-PSDB; N93088.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7 13
P94037 standard; protein; 155 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 25-JUN-1990 (first entry)
Human acidic fibroblast growth f
Acidic fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Match 49.7%;
Local Similarity 99.3%;
les 134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity 99.3%;
Matches 134; Conservative
                                   03-MAR-1986; US-835594.
18-DEC-1987; US-134499.
29-APR-1991; US-693079.
27-NOV-1991; US-799859.
03-NOV-1994; US-334884.
07-UUN-1995; US-472964.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          140 GOKAILFLPLPVSSD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Disclosure; p; English. See also P94038.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11-JAN-1989.
06-JUL-1988; 306158.
07-JUL-1987; US-070797.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens.
EP-298723-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    P94037;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     81
   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      147 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           80 AMDIDGLLYGSQIPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRIHY 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NOT-1296 (35594.

03-MAR-1986; 03-5594.

R 18-DEC-1897; US-134499.

R 27-NOV-1991; US-693079.

R 07-UNV-1995; US-799859.

A (RHON ) RHONE POULENC RORER PHARM INC.

I BUTGSS W, Drohan WN, Jaye M, Maciag T;

R PSDB; 145983.

R N-PSDB; 145983.

T Recombinant human endothelial cell growth factors - for treating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     damaged blood vessels, etc.

Claim 1: Column 16: 22pp; English.

Human recombinant endothelial cell growth factors (ECGF) beta

Human recombinant endothelial cell growth factors (ECGF) beta

They can be produced in transformed prokaryotic or eukaryotic host

cells using DNA sequences (T45983 and T45984, respectively) derived

from the complete human ECGF CDNA (T45985). Large quantities of

the ECGFs are produced by culturing the host cells and recovering

the proteins. ECGFs have utility in the growth and amplification

of endothelial cells in culture. They can potentially be used to

treat damaged blood vessels and other endothelial cell-lined

Sequence 154 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                    80 AMDIDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            W75414 standard; protein; 154 AA.
W75414;
02-MAR-1999 (first entry)
Human beta-endothelial cell growth factor.
Human; endothelial cell growth factor, ECGF; brain stem; probe; hybridisation; bovine; wound healing; prosthetic device.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 984; DB 1; Length 154; Pred. No. 3.21e-78; 1; Mismatches 0; Indels
                                                                                                                                                                                                                                                                               Human endothelial cell growth factor-beta.
Endothelial cell growth factor-beta; ECGF-beta.
                                                                                                                                                                                                        ,T 11
W06816 standard; Protein; 154 AA.
W06816;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       wery Match 49.7%;
est Local Similarity 99.3%;
fatches 134; Conservative
                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                140 GQKAILFLPLPVSSD 154
                                                                                                           140 GOKAILFLPLPVSSD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       267 GQKAILFLPLPVSSD 281
                                                                                                                                                                                                                                                                                                                        Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens.
US5827826-A.
27-OCT-1998.
                                                                                                                                                                                                                                                             17-MAR-1997
                                                                                                                                                                                                                                                                                                                                                           05-NOV-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
```

ö

Gaps

ö

0; Indels

Length 154;

```
ö
80 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 139
                        207 AMDIDGLLIGSQIPNEECLFLERLEENHYNTYISKRHAEKNWFVGLKKNGSCKRGPRTHY 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 984; DB 1; Length 155
Pred. No. 3.21e-78;
1; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Recombinant DNA encoding new fibroblast growth factor analogues - useful eg for accelerating wound healing eto control neovascularisation
```

ò g 셤

ö

```
141 GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                               BIOTECH
                                                                                                                                                                                                                                                                                                                                         Matches
   ద
                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AMDIDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     207 AMDIDGLLYGSQIPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRIHY 266
                                                                                                                                          FGF-1; fibroblast growth factor; cytotoxic conjugate; fusion protein; saporin; cytostatic; tumor; diabetes; rheumatoid arthritis.
Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                              Disclosure; Page 108-109; 128pp; English.

Novel fusion proteins comprise FGF linked to saporin. FGF-1 to -9
may be used, pref. FGF-1 (R70812), FGF-5 (R70813), FGF-7 (R70814) or
FGF-8 (R70815) muteins, in which at least 1 Cys residue is replaced
by conservative Ser substitutions. The fusion proteins are potent
cytocidal agents to cells bearing the FGF receptor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                  New monogenous preparations of cytotoxic conjugates and DNA -contain fibroblast growth factors and cytotoxic agents for treating FGF conditions such as tumours, diabetes and rheumatoid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               13-MAY-1991 (first entry)
Sequence encoded by complete cDNA sequence of human endothelial cell growth factor (ECGF).
Endothelial cell regeneration; blood vessel regeneration.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 984; DB 1; Length 155;
Pred. No. 3.21e-78;
1; Mismatches 0; Indels
                                                                                                                                                                                                                             /note= "Cys may be replaced by Ser"
                                                                                                                                                                                                                                                                          02-AUG-1993; US-099924.
29-OCT-1993; US-145829.
(PRIZ-) PRIZM PHARM INC.
(WHIT-) WHITTIER INST DIABETES & ENDOCRINOLOGY.
Baird AJ, Lappi DA, Sosnowski BA;
                                                                                                                                                                                             /note= "Cys may be replaced by misc_difference 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2. .15
/label= Beta ECGF
16. .21
/label=_Acidic FGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   22. .155
/label= Alpha ECGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .T 15
P70482 standard; Protein; 155 AA.
P70482;
                                                                                  T 14
R70812 standard; protein; 155 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity 99.3%;
Matches 134; Conservative
                                                                                                                    01-SEP-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       141 GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  141 GOKAILFLPLPVSSD 155
                                     09-FEB-1995.
27-JUL-1994; U08511.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      155 AA;
                                                                                                                                                                                         misc_difference 31
                                                                                                                                                                                                                                                                                                                                     WPI; 95-082038,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                        WO9503831-A.
                                                                                                                                                                                                                                                                                                                                                                                    arthritis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein
                                                                                                                                  FGF-1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Key
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                               ò
                                               ŏ
```

```
Human endothelial cell growth factor - produced by recombinant DNA techniques, useful for wound healing Example; Ftq 8: 43pp; English.

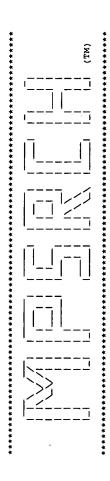
Example; Ftq 8: 43pp; English.

To screen the human brain stem CDNA library for clones contg. ECGF inserts, a specific obligonucleotide was designed. This obligonucleotide was based upon a partial AA sequence analysis of the amino terminus of ECGF (see P704480 and P70481). Ftg 3c sets forth for comparison the AA sequence of cyanogen bromide-cleaved bovine alpha and beta ECGF (P70834). The two clones that were isolated, ECGF clones 1 and 29, were analysed in further detail. The nucleotide sequence of these clones and the AA sequence deduced from the nucleot acid sequence is shown in Fig 8 (see N70788 and P70482).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 984; DB 1; Length 135, Pred. No. 3.21e-78;
                                                                                                                                                                                                                                           Jaye M, Burgess W, Maciag T, Drohan W; WPI; 87-264128/37.
N-PSDB; N70788
                                                                                                     (MELO-) MELOY LAB INC.
(RORE ) RORER BIOTECHN INC.
(RORE-) RORER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Match 49.7%;
Local Similarity 99.3%;
les 134; Conservative
02-MAR-1987; U00425.
03-MAR-1986; US-835594.
26-MAR-1987; ES-000812.
```

81 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 140 21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 80 0; Gaps

ö

Search completed: Tue Aug 29 16:06:43 2000 Job time : 31 secs.



Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

MPsrch\_pp protein - protein database search, using Smith-Waterman algorithm Tue Aug 29 16:04:37 2000; MasPar time 15.90 Seconds 833.849 Million cell updates/sec :uo

abular output not generated.

>US-09-121-017B-23 (1-281) from USO9121017B.pep 1980 1 MAPARLFALLLFFVGGVAES.....PRTHYGQKALLFLPLPVSSD 281 Title: Description: Perfect Score:

Sequence:

PAM 150 Gap 11 Scoring table:

Searched:

142080 seqs, 47172406 residues

Minimum Match 0% Listing first 45 summaries Post-processing:

pir64 1:pir1 2:pir2 3:pir3 4:pir4 Database:

Mean 46.699; Variance 90.971; scale 0.513 Statistics: Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

### SUMMARIES

Description Pred. No.	4.0		fibroblast gro 1.	gro 1.	acidic fibroblast gro 1.32e-16	acidic fibroblast gro 3.55e-16	acidic fibroblast gro 5.79e-16	iblobrast growth fac 7.64e-15	ryudocan precursor - 6.80e-11	ryudocan precursor - 3.34e-10	basic fibroblast grow 1.66e-78	basic fibroblast grow 2.77e-77	fibroblast	fibroblast grow 1.	basic fibroblast grow 1.18e-75	fibroblast grow 7.	basic fibroblast grow 1.27e-73	basic fibroblast grow 8.48e-72	fibroblast growth fac 3.78e-67	fibroblast growth fac 2.53e-44	fibroblast growth fac 2.53e-44	fac A
ID Desc	JC1457 ryu		r0		JH0476 aci	GKBOA aci	A60130 aci	JW0055 £1b	_		A48834 bas	S00185 bas	GKBOB basic	A31674 basic		A32398 basic	~	A40117 bas	I46711 fib	A48137 fib	S66486 fib	.TC5941
DB	~-		7	7	~	-	7	7	~	7	~	-	Н	~	7	~	~	-	7	~	~	c
a Query Match Length	198	155	155	155	152	155	155	155	202	198	189	146	157	154	154	210	164	155	137	208	208	207
& Query Match	50.2	48.8	48.8	48.8	48.1	46.4	46.3	45.8	34.3	32.4	26.4	26.1	26.1	25.7	25.7	25.7	25.2	24.7	23.5	17.7	17.7	9
Score	993	967	967	296	953	918	917	907	619	642	522	516	516	508	208	509	498	489	466	351	351	329
ult No.	щ.	4 M	4	S	ø	7	ω	σ	10	11	12	13	14	15	16	17	18	19	20	21	22	23

4.26e-39 3.54e-37	4.44e-35	1.07e-34	3.08e-32	2.69e-31	2.69e-31	8.52e-30	5.54e-30	2.01e-29	4.75e-29	1.12e-28	6.21e-28	6.21e-28	1.88e-26	1.23e-26	4.39e-26	2.39e-25	4.56e-24	2.44e-23	8.55e-23
fibroblast growth fac keratinocyte growth f fibroblast growth fac	keratinocyte growth f	fibroblast growth fac	embryonic fibroblast	transforming protein	fibroblast growth fac	embryonic Fibroblast	fibroblast growth fac	HST protein - bovine	fibroblast growth fac	transforming protein	fibroblast growth fac	syndecan-4 precursor	fibroblast growth fac	fibroblast growth fac	fibroblast growth fac	FGF-3 - chicken	fibroblast growth fac	transforming protein	transforming protein
JC5940 S49501	148610	S26049	\$23595	A36207	S68144	S54407	150710	JC4268	JC4627	TVHUF5	JH0708	A53126	JG0184	S20102	TVHUHS	I50588	S14192	539582	TVMST2
207 2 194 2	194 2	194 2	187 2	264 2	266 2	192 2	194 2	206 2	256 2	267 1	60 2	197 2	168 2	208 2	206 1	220 2	208 2	237 1	245 1
16.4	15.3	15.2	14.5	14.3	14.3	13.9	13.9	13.8	13.7	13.6	13.4	13.4	13.0	13.0	12.9	12.7	12.3	12.1	12.0
324	303	301	288	283	283	275	276	273	271	269	265	265	257	258	255	251	244	240	237
25	22	28	53	00	31	32	33	34	32	36	22	8	39	9	듸	2	2	7	2

### ALIGNMENTS

JC1457 #type complete ryudocan precursor - human	<pre>fES amphiglycan; core protein #formal_name Homo sapiens #common_name man 30-Sep-1993 #sequence_revision 30-Sep-1993 #text_change 17-Mar-1999</pre>	JC1457; S26695 JC1457	Kojima, T.; Inazawa, J.; Takamatsu, J.; Rosenberg, R.D.; · Satio, H.	Biochem. Biophys. Res. Commun. (1993) 190:814-822 Human ryudoosan core protein: Molecular cloning and characterisation of the characterisation of the characterisation.	of the gene.	#cross-references MUD:93176185 #accession JC1457	ule_type mRNA	**restdues **cross-references DDBJ:D13292; NID:q286020; PID:d1003053: PID:q286021	526695	David, G.; van der Schueren, B.; Marynen, P.; Cassiman, J.J.;	van den Berghe, H. T. Cell Biol (1992) 118.961-969	Molecular cloning of amphiglycan, a novel integral membrane	heparan sulfate proteoglycan expressed by epithelial and fibroblastic cells.	erence	82669	is preliminary	##molecule_type_mRNA ##rosidnes				chondroitin sulfate proteogiycan; core protein; giycoprotein; heparan sulfate; transmembrane protein		#domain signal sequence #status predicted # abel SIG\	#product ryudocan #status predicted #label MAT\	#binding_site heparan sulfate (Ser) (covalent) #status	predicted #length 108 #molecular-weight 21641 #checkenm 4522
RESULT 1 ENTRY TITLE	ALTERNATE_NAMES ORGANISM DATE	ACCESSIONS REFERENCE	#authors	#journal #title	,	#cross-refe #accession	##molecu	##residnes ##cross-re	REFERENCE	#authors	#1011	#title		#cross-refe	#accession	##status	##molecu ##residu	##Cross-	GENETICS	#map_position 20q12	KEYWORDS	FEATURE	1-18	19-198	39,61,63	SITMMARY

#length 198 #molecular-weight 21641 #checksum 4522 Score 993; DB 2; Length 198; Pred. No. 4.09e-177; Query Match 50.2%; Best Local Similarity 100.0%; SUMMARY

```
##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #authors
#journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #authors
#journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #journal Mol. Cell. Biol. (1989) 9:2387-2395
#title Clouling of the gene coding for human class 1 heparin-binding
growth factor and its expression in fetal tissues.
#cross-references MUD:89343957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Oncogene (1991) 6:1521-1529
Cloning and sequence analysis of the human acidic fibroblast
growth factor gene and its preservation in leukemia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##molecule_type mRNA
#residues 1-155 ##label CHI
##cross-references EMBL:X51943; NID:g32435; PIDN:CAA36206.1; PID:g32436
REFERENCE A24662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##residues 1-155 ##label WAN ##cross-references GB:M23087; NID:g183875; PIDN:AAA52638.1; PID:g386768
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mergia, A.; Tischer, E.; Graves, D.; Tumolo, A.; Miller, J.; Gospodarowicz, D.; Abraham, J.A.; Shipley, G.D.; Fiddes,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Biochem. Biophys. Res. Commun. (1989) 164:1121-1129
Structural analysis of the gene for human acidic fibroblast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             of mRNA coding for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Wang, W.P.; Lehtoma, K.; Varban, M.L.; Krishnan, I.; Chiu,
                                                                                                                                                    61 SGSGDLDDLEDSMIGPEVVHPLVPLDNHIPERAGSGSQVPTEPKKLEENEVIPKRISPVE 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A33665; A32316; S18217; A43804; A24662; JH0707; S35535; S35536; I39413; A23553; A24820; A24243; A24301; A26386;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Jaye, M.; Howk, R.; Burgess, W.; Ricca, G.A.; Chiu, I.M.;
                                                                   1 MAPARLFALLIFFVGGVAESIRETEVIDPQDLLEGRYFSGALPDDEDVVGPGQESDDFEL 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Wang, W.P.; Quick, D.; Balcerzak, S.P.; Needleman, S.W.;
Chiu, I.M.
                                        1 MAPARLFALLLFFVGGVAESIRETEVIDPQDLLEGRYFSGALPDDEDVVGPGQESDDFEL 60
                                                                                                                                                                                                                                                                                                                                              acidic fibroblast growth factor 1 precursor - human beta-ECGF; endothelial cell growth factor beta; heparin-binding growth factor 1 #formal_name Homo sapiens #common_name man 10.5ep-1999 #sequence_revision 10-Sep-1999 #text_change
  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #authors Chiu, I.M.; Wang, W.P.; Lehtoma, K.
#journal Oncogene (1990) 5:755-762
#title Alternative splicing generates two forms human heparin-binding growth factor 1.
#cross-references MUID:90265618
  ;
0
  Mismatches
                                                                                                                                                                                                                                         121 ESEDVSNKVSMSSTVQGSNIFERTEV 146
                                                                                                                                                                                                                 121 ESEDVSNKVSMSSTVQGSNIFERTEV 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type DNA
##residues 1-155 ##label MER
##cross-references GB:M30491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##cross-references EMBL:M23086
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #cross-references MUID:92019819
#accession S18217
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 patients.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #accession A32310
##molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A43804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A33665
146;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##residues
                                                                                                                                                                                                                                                                                                                                                                                         TERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #journal
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                  SANISM
                                                                                                                                                                                                                                                                                                                        RESULT
                                          g
                                                                                   ò
                                                                                                                           셤
                                                                                                                                                                        ð
                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                           ô
```

```
#journal J. Exp. Med. (1992) 175:1073-1080
#title An acidic fibroblast growth factor protein generated by #accession JH0707
##molecule_type mRNA ##residues
##residues
##residues
##residues
###residues
###residues
###residues
###residues
###residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S35535
Payson, R.A.; Canatan, H.; Chotani, M.A.; Wang, W.P.; Harris, S.E.; Myers, R.L.; Chlu, I.M.
Nucleic Acids Res. (1993) 21:489-495
Cloning of two novel forms of human acidic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##residues 1.40 ##label RES
##cross-references GB:M60515; NID:g178226; PIDN:AAA51672.1; PID:g553170;
GB:M60516; NID:g178232; PID:g553171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A. Blochem. Blophys. Res. Commun. (1986) 135:541-548 Human brain-derived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitogenic activities.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Crumley, G.; Dionne, C.A.; Jaye, M.
Blochem. Biophys. Res. Commun. (1990) 171:7-13
The gene for human acidic fibroblast growth factor encodes
two upstream exons alternatively spliced to the first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #authors Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A.
#journal Blochem. Blophys. Res. Commun. (1986) 138:611-617
#title The complete amino acid sequence of human brain-derived acidic fibroblast growth factor.
#cross-references MUID:86295741
                                                                                    nucleotide
Ravera, M.W.; O'Brien, S.J.; Modi, W.S.; Maciag, T.;
                            #journal Science (1986) 233:541-545
#title Human endothelial cell growth factor: cloning, sequence, and chromosome localization.
#cross-references MID:86261805
#accession A24662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #authors Harper, J.W.; Strydom, D.J.; Lobb, R.R.
#journal Biochemistry (1986) 25:4097-4103
#cross-references WUID:86296647
#accession A23553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##molecule_type protein
##residues 16-155 ##label HAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##molecule_type protein
##residues 16-155 ##label GIM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##cross-references GB:L01487
NCE 139412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      factor (aFGF) mRNA.
#cross-references MUID:93181239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1-58 ##label PAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##cross-references GB:L01485
cession S35536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   coding exon.
#cross-references MUID:90365758
#accession 139413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##status
##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A23553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A24820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A24820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        835535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A90122
```

m

```
##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                       CLASSIFICATION
                                                                                                                                                                                                                                                                                                                   ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #accession
                                                                                                                                                                                                                                                                                      #accession
                                                                                                                                                        #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
#authors
                                                                                             #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #title
                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   acidic fibroblast growth factor - golden hamster
heparin-binding growth factor 1
#formal_name Mesocricetus auratus #common_name golden hamster
10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                       #authors Gautschi-Sova, P.; Muller, T.; Bohlen, P.
#journal Blochem. Blochem. Sepupys. Res. Commun. (1986) 140:874-880
#title Amino acid sequence of human acidic fibroblast growth factor.
#cross-references MUID:87048871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #product fibroblast growth factor 1 #status experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Chavan, A.J.; Haley, B.E.; Volkin, D.B.; Marfia, K.E.; Verticelli, A.M.; Bruner, M.W.; Draper, J.P.; Burke, C.J.; Middaugh, C.R.
Blochemistry (1994) 33:7193-7202
Interaction of nucleotides with acidic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 16-30,'X',32-38;73-75,'X',77-97,'X',99-101;128-131,'X'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     81 AMDIDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                             ##molecule_type protein
##residues_type protein
##residues_16-47 ##label GI2
##residues_16-47 ##label G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #label MAT\
#binding_site carbohydrate (Asn) (covalent) #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                207 AMDIDGLLYGSQIPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCRRGPRTHY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #superfamily fibroblast growth factor alternative splicing; growth factor; heparin binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  absent #length 155 #molecular-weight 17460 #checksum 9243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 1; Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         49.7%; Score 984; DB 1; Lot 99.3%; Pred. No. 3.37e-175;
                                                                                                                                                                                                                                                                                                                                                                                                                              16-30,'X',32-49 ##label GAU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##cross-references GDB:119909; OMIM:131220
#map_position 5q31.3-5q33.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #type complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##molecule_type protein
##residues 16-155 ##label GA2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   factor (FGF-1)
#cross-references MUID:94271773
#accession A53639
#cross-references MUID:86186784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #experimental_source brain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GDB:FGF1; FGFA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Local Similarity 99.3%;
Matches 134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                          ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    141 GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GOKAILFLPLPVSSD 281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                57/1; 91/3
                                A24243
                                                                                                                                                                                                                                                                                                                                                                       A24301
                                                                                                                                                                                                                                                                                                                                                                                                                                    ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ALTERNATE_NAMES ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                          *accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                introns
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    16-155
                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENETICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #dene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
```

```
Goodrich, S.P.; Yan, G.C.; Bahrenburg, K.; Mansson, P.E.
Nucleic Acids Res. (1989) 17:2867
The nucleotide sequence of rat heparin binding growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                               aFGF/HGBF-I gene
                                                               P.E.; Zhou,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     81 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         207 AMDIDGLLYGSQIPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   206 LAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNG-CKRGPRTH 265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     80 LAMDTEGLLYGSQTPNEECLFLERLEENHYNTYTSKKHAEKNWFYGLKKNGSUKRGPRTH 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                              21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20 LGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQY 79
                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S04147 *type complete acidic fibroblast growth factor 1 - rat heparin-binding growth factor 1 heparin-binding growth factor 1 *formal_name Rattus norvegicus *common_name Norway rat 28-Feb-1990 *sequence_revision 28-Feb-1990 *text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Gaps
                                                                                                                                                                                                                                                        #superfamily fibroblast growth factor
growth factor; heparin binding
#length 155 #molecular-weight 17403 #checksum 9573
                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                             Hall, J.A.; Harris, M.A.; Malark, M.; Mansson, H.; Harris, S.E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2; Indels
                                                                                                                                                                                                                                                                                                                                                                        Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 155;
                                                                                                                                                                                                                 not compared with conceptual translation
                                                                                                                                                                                                                                                                                                                                                                   Score 967; DB 1; Length 155
Pred. No. 1.39e-171;
2; Mismatches 2; Indels
                                                                                                                           #cross-references MID:90270291
                                                                                                      J. Cell. Biochem. (1990) 43:17-26
Characterization of the hamster DDT-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 967; DB 2; L. Pred. No. 1.39e-171; 4; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##molecule_type mRNA
##residues 1-155 ##label GOO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 (HBGF-1).
#cross-references MUID:89240051
                                                                                                                                                                                                                                                                                                                                                                     Query Match 48.8%;
Best Local Similarity 97.0%;
Matches 131; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity 95.6%;
Matches 130; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      16-Jul-1999
10-Sep-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         140 YGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  141 GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S04147
                                                                                                                                                                                             A60721
```

```
#authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                             22-28
                                                                                                                        KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                COMMENT
                                                                                                                                          FEATURE
                                                                                                                                                                                                    SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                  q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                           members and
                                                                                                                                                                                                                                                                                                                                                                            ##residues 1-155 ##label HEB ##cross-references GB:M30641; NID:g193284; PIDN:AAA37618.1; PID:g309236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    acidic fibroblast growth factor - pig (fragment)
#formal_name Sus scrofa domestica #common_name domestic pig
31-Mar-1992 #sequence_revision 31-Mar-1992 #text_change
                                                                                                                                                                               Hebert, J.M.; Basilico, C.; Goldfarb, M.; Haub, O.; Martin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       146 VANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQY 205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 80 LAMDTEGLLYGSQTPNEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGPRTH 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This protein is an inducer of neovascularization in angiogenic disease including atherosclerosis, cancer and inflammatory autoimmune disease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20 LGNYKKPKLLYCSNGGHFLRILPDGTVDGTKDRSDQHIQLQLSAESAGEVYIKGTETGQY 79
                                                              #formal_name Mus musculus #common_name house mouse
17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change
16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                 Dev. Biol. (1990) 138:454-463
Isolation of CDNAs encoding four mouse FGF family membe
characterization of their expression patterns during
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #authors Schmidt, M.; Sharma, H.S.; Schott, R.J.; Schaper, W. #journal Biochem. Biophys. Res. Commun. (1991) 180:853-859 #title Amplification and sequencing of mRNA encoding acidic #cross-references MUID:92062117
                                                                                                                                                                                                                                                                                                                                                                                                                                      #authors Madiai, F.; Hackshaw, K.V.; Chiu, I.M. Gene (1996) 179:231-236 #title Cloning and characterization of the mouse Fgf-1 gene. #cross-references WID:97128312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Fgf-1
57/1; 91/3
*superfamily fibroblast growth factor
#length 155 #molecular-weight 17417 #checksum 9341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2; Indels
                    D37360 #type complete acidic fibroblast growth factor - mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 967; DB 2; L4
Pred. No. 1.39e-171;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1-155 ##label MAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1-152 ##label SCH
                                                                                                                                                                                                                                                                               embryogenesis.
#cross-references MUID:90201563
#accession D37360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##cross-references GB:U36456
                                                                                                                                                                                                                                                                                                                            ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 48.8%;
Best Local Similarity 95.6%;
Matches 130; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JH0476; S20072
                                                                                                                                        D37360; JC5231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             140 YGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    16-Jul-1999
                                                         aFGF; FGF-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #accession JH0476
##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##molecule_type DNA
                                                                                                                                                             A37360
                                                                                                                                                                                                    G.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JC5231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##residues
                                                         ALTERNATE_NAMES
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #introns
CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #accession
                                                                                                                                                                               #authors
                                                                                                                                                                                                                       #journal
                                                                                                                                        ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     266
                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                       #title
                                                                                                                                                                                                                                                                                                                                                                                                                     FERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENETICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             쉱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
```

```
Halley, C.; Courtois, Y.; Laurent, M. Nucleic Acids Res. (1988) 16:10913 Nucleotide sequence of bovine acidic fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Renaud, F.; Desset, S.; Bugra, K.; Halley, C.; Philippe, J.M.; Courtois, Y.; Laurent, M. Biochem. Biophys. Res. Commun. (1992) 184:945-952 Heterogeneity of 3' untranslated region of bovine acidic FGF
                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              acidic fibroblast growth factor precursor - bovine aFGF; eye-derived growth factor II; heparin-binding growth factor I; prostatropin factor I; prostatropin factoral_name Bos primigenius taurus #common_name cattle 13-Aug-1986 #sequence_revision 03-Feb-1994 #text_change
##cross-references EMBL:X60317; NID:g1873; PIDN:CAA42869.1; PID:g1874
##experimental_source heart
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 81 AMDTSGLLYGSQTPSEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     207 AMDIDGLLYGSQIPNEECLFLERLEENHYNIYISKKHAEKNWFVGLKKNGSCKRGPRIHY 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JH0613; S02102; S02661; S22065; B24663; A94281; S03953;
A91010; A24477; B25043; C25043; A25043; A24539; A60884;
A37892; B37892; A61198; I46024; A34477; A01385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type mRNA
##residues 1-155 ##label HAL
##cross-references EMBL:X13221; NID:g347; PIDN:CAA31610.1; PID:g348
                                                           the hydrophobic core residues are packed around the
                                                                                                                                                                                                                                                                                                                                                                                                                                                    21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##cross-references EMBL:X14032; NID:g322; PIDN:CAA32192.1; PID:g323
                                                                                                                                                                                                                                                                                                                                                                                              0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   acidic FGF cDNA clone and
                                                                                     internal symmetry axis
This protein belongs to the fibroblast growth factor family.
IION *superfamily fibroblast growth factor
growth factor; heparin binding
                                                                                                                                                                                                                           #region nuclear location signal\
#binding_site heparin (Lys) #status predicted
#length 152 #checksum 1124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alterio, J.; Halley, C.; Brou, C.; Soussi, T.;
                                                                                                                                                                                                                                                                                                                                     Length 152;
                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                     Score 953; DB 2; L
Pred. No. 1.32e-168;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #journal FEBS Lett. (1988) 242:41-46
#title Characterization of a bovine acid
expression in brain and retina.
#cross-references WID:89078619
#accession S02661
                                                                                                                                                                                                                                                                                                                                                                                                 2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #type complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##molecule_type DNA
##residues . 58-155 ##label REN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type mRNA
##residues 1-155 ##label ALT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #cross-references MUID:92246990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #cross-references MUID:89083506
#accession S02102
                                                                                                                                                                                                                                                                                                                                     Query Match 48.1%;
Best Local Similarity 97.0%;
Matches 128; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Laurent, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            transcript
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       141 GOKAILFLPLPV 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       802102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JH0613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ALTERNATE_NAMES
                                                                                                                                           CLASSIFICATION
                                                              ##note
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
```

Philippe, J.M.

```
A61198
                                                                                                                                                                                                        A24539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A37892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B37892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         146024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      146024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A34477
                                                                                                                                                                                                                                                    ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##residues
    ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #accession
                                                                                                                                                                                                        #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #accession
                                                                                                                                                                                                                                                                                                                                                                                                          #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##note
                         ##note
                                                                                                                                                                                                                                                                                                #authors
                                                                                                                                                                                                                                                                                                                                          #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #journal
                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                 #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                              #authors Abraham, J.A.; Mergia, A.; Whang, J.L.; Tumolo, A.; Friedman, J.; Hjerrild, K.A.; Gospodarowicz, D.; Fiddes, J.C.
#journal Science (1986) 233:545-548
#title Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fibroblast growth factor.
#cross-references MUID:86261806
                                                                                                                                                                                                                                                                                                                                                       Gimenez-Gallego, G.; Rodkey, J.; Bennett, C.; Rios-Candelore, M.; DiSalvo, J.; Thomas, K. Science (1985) 230:1385-1388
Brain-derived acidic fibroblast growth factor: complete amino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #authors Quinkler, W.; Maasberg, M.; Bernotat-Danielowski, S.; Luethe, N.; Sharma, H.S.; Schaper, W.
Bur. J. Blochem. (1989) 181:67-73
#title Isolation of heparin-binding growth factors from bovine, porcine and canine hearts.
#cross-references MUID:89231704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #authors Crabb, J.W.; Armes, L.G.; Carr, S.A.; Johnson, C.M.; Roberts,
G.D.: Bordoll, R.S.: McKeehan, W.L.
#journal Biochemistry (1986) 25.4988-4993
#fille Complete primary structure of prostatropin, a prostate
epithelial cell growth factor.
#cross-references MUID:87026586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          this form was designated acidic fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Maciag, T.

#journal Proc. Natl. Acad. Sci. U.S.A. (1986) 83:7216-7220

#title Structural evidence that endothelial cell growth factor beta is the precursor of both endothelial cell growth factor alpha and acidic fibroblast growth factor.

#cross-references MUID:87016918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##molecule_type protein
##residues 2-155 ##label BUR
##note this form was designated beta endothelial cell growth
                                                              ##residues 1-18 ##label PHI
##cross-references EMBL:X66446; NID:g411; PIDN:CAA47063.1; PID:g412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bohlen, P.; Esch, F.; Baird, A.; Gospodarowicz, D.
EMBO 7, (1985) 4:1951-1956
Acidic fibroblast growth factor (FGF) from bovine brain:
amino-terminal sequence and comparison with basic FMF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Burgess, W.H.; Mehlman, T.; Marshak, D.R.; Fraser, B.A.;
  submitted to the EMBL Data Library, May 1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           16-30,'X',32-34,'X',36-44 ##label BOH
A24477
                                                                                                                                                                                                                                                                                                                                                                                                                                               cross-references MUID:86070224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   :Cession
##molecule_type protein
##rexidues 2,'GE',5-155 ##label CRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##molecule_type protein
##residues 16-155 ##label GIM
                                                                                                                                                                                                                                                                                       ##molecule_type mRNA
##residues 62-102 ##label ABR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  16-155 ##label BU2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type protein
##residues 16-45 ##label QUI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cross-references MUID:86055750
taccession A91010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##molecule_type protein
##residues 16-155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##molecule_type protein
                                           ##molecule_type mRNA
##residues 1-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            503953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  503953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A91010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B25043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A25043
                                                                                                                                                                                                                                                                       B24663
                                                                                                                                                                                                                                                                                                                                   A94281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A24477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##residues
#submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 *accession
                                                                                                                                                                                                                                                                       #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##note
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #authors
                                                                                                                                                                                                                                                                                                                                                              #authors
                                                                                                                                                                                                                                                                                                                                                                                                        | journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #authors
                                                                                                                                                                                                                                                                                                                                                                                                                               *title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #title
                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                       REFERENCE
```

```
#authors Kuo, M.D.; Huang, S.S.; Huang, J.S.
#journal J. Biol. Chem. (1990) 265:16455-16463
#title Acidic fibroblast growth factor receptor purified from bovine liver is a novel protein tyrosine kinase.
#cross-references MUID:90375514
#accession A37892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   neurones in
                                                                                                                                                                                                                                                                                                                                                                         Thomas, K.A.; Gimenez-Gallego, G.; Rios-Candelore, M.; DiSalvo, J.
J. Protein Chem. (1987) 6:163-171
Primary structure and mitogenic and angiogenic activities of brain-derived acidic fibroblast growth factor.
A60884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #authors Philippe, J.M.; Renaud, F.; Desset, S.; Laurent, M.; Mallet, J.; Courtols, Y.; Bdwards, J.B.

#journal Bloothem. Blophys: Res. Commun. (1992) 188:843-850

Cloning of two different 5' untranslated exons of bovine acidic fibroblast growth factor by the single strand ligation to single-stranded cDNA methodology.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #authors Sasaki, H.; Hoshi, H.; Hong, Y.M.; Suzuki, T.; Kato, T.; Sasaki, H.; Baito, M.; Youki, H.; Karube, K.; Konno, S.; Gnodera, M.; Saito, T.; Aoyaqi, S. J. Biol. Chem. (1989) 264:17606-17612
#title Purification of acidic fibroblast growth factor from bovine heart and its localization in the cardiac myocytes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         22-30,'X',32-38 ##label KU2
this form was designated brain-derived growth factor A
22-155 ##label BU3 this form was designated alpha endothelial cell growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a form
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hill, C.E.; Belford, D.A.; Godovac-Zimmermann, J.; Hendry,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##molecule_type protein
##residues 11-26;28-50;53-110,'H',112,'NTY';134-155 ##label HIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            this sequence is an amino-terminal fragment of designated as brain-derived growth factor B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Brain Res. Dev. Brain Res. (1991) 63:13-19
Class 1 heparin binding growth factor promotes the
differentiation but not the survival of ciliary n
                                                                                         ERENCE A24539
#authors Strydom, D.J.; Harper, J.W.; Lobb, R.R.
#journal Biochemistry (1986) 25:945-951
#title Amino acid sequence of boyine brain derived class heparin-binding growth factor.
#cross_references MUID:86187766
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##residues j6-24;121-127;134-143 ##label SAS ##experimental_source heart
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##molecule_type protein
##residues 62-76,'X',78-86 ##label KUO
                                                                                                                                                                                                                                                                                                                                            16-155 ##label STR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            16-155 ##label THO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #cross-references MUID:92164087
#accession A61198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            preliminary
                                                                   factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##molecule_type protein
                                                                                                                                                                                                                                                                                                         ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##molecule_type protein
```

9

```
##note
                                                                                                                                                                                                                                                                                            ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSIONS
                    206
                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
                                                                                                                                                        RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                        셤
                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
            endothelial cell growth factors. Both are angiogenic agents in vivo and are potent mitogens for a variety of mesoderm-derived cell types in vitro (although bFGF is 30-100 times more potent than aFGF in stimulating the proliferation of normal diploid cells). There are differences in the tissue distribution and concentration of these two growth factors.

This protein binds heparin, although less strongly than does bFGF. There are some sequence similarities between residues 117-126 (a region flanked by Lys-Lys dipeptides) and a number of neuropeptides, including a gastrin-releasing peptide from the pig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #authors Risau, W.; Gautschi-Sova, P.; Boehlen, P.
#journal EMBO J. (1988) 7:959-962
#title Endothelial cell growth factors in embryonic and adult chick
brain are related to human acidic fibroblast growth factor.
#cross-references MUID:88296438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                    80 LAMDINGLLYGSQLPGEECLFLERLEENHYNTYISKKHADKNWFVGLKKNGNSKLGPRIH 139
                                                                                                                                                                                                                                                                                                                                                                                                                          80 LAMDIDGLLYGSQIPNEECLFLERLEENHYNTYISKKHAEKHWFVGLKKNGRSKLGPRIH 139
                                                                                                                                                                                                                                                                                                                                                  20 LGNYKKPKLLYCSNGGYFLRILPDGTVDGTKDRSDQHIQLQLCAESIGEVYIKSTETGQF 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20 LGNYKKPKLLYCSNGGHFLRILPDGKVDGTRDRSDQHIQLQLSAEDVGEVYIKSTASGQY 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       acidic fibroblast growth factor - chicken endothelial cell growth factor endothelial cell growth factor #formal_name Gallus gallus #common_name chicken 03-Mar-1993 #sequence_revision 03-Mar-1999 #text_change
                                                                                                                                                                                                                                                                                                              Gaps
acidic and basic fibroblast growth factors are the major
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Definition (1991) 111:1143-1154
Differentiating and mature neurons express the acidic fibroblast growth factor gene during chick neural
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #checksum 7617
                                                                                                                                                                                                                                                                                                              .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 155;
                                                                                                                                                                                                                                                                      Length 155;
                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        22-30,'x',32-44,'x',46-48 ##label RIS #superfamily fibroblast growth factor growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #length 155 #molecular-weight 17322
                                                                                                                                                                                                                                                                    Score 918; DB 1; Le
Pred. No. 3.55e-161;
7; Mismatches 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pred. No. 5.79e-161;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 917;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Schnuerch, H.; Risau, W.
                                                                                                                                                                                                                      Note: remainder of annotations omitted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #cross-references MUID:91347925
#accession A60130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          46.3%;
larity 89.7%;
Conservative
                                                                                                                                                                                                                                                                      Query Match 46.4%;
Best Local Similarity 91.2%;
Matches 124; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A60130; S02639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       140 FGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               developmen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity
Matches 122; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S02639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        802639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ALTERNATE_NAMES
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #journal #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SUMMARY
                                                                                                                                    COMMENT
                                                                                                                                                      COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               쉽
                                                                                                                                                                                                                                                                                                                                                                                                                              a
a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
```

```
Biochem. Biophys. Res. Commun. (1998) 246:182-191
Primary structure of ovine fibroblast growth factor-1 deduced
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sidues 1-155 ##label GRI
This protein is a potent mitogenic factor for NIH 3T3 fibroblasts
in the absence of heparin.
TION #superfamily fibroblast growth factor
#length 155 #molecular-weight 17557 #checksum 8890
                                                                                                                                                                                                                                                                                                                                                Grieb, T.W.; Ring, M.; Brown, E.; Palmer, C.; Belle, N.;
Donjerkovic, D.; Chang, H.; Yun, J.; Subramanian, R.;
Forozan, F.; Guo, Y.; Vertes, A.; Winkles, J.A.; Burgess,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Kojima, T.; Shworak, N.W.; Rosenberg, R.D.
J. Biol. Chem. (1992) 267:4870-4877
Molecular cloning and expression of two distinct
CDNA-encoding heparan sulfate proteoglycan core proteins
from a rat endothelial cell line.
80 LAMDINGLLYGSQIPSEECLFLERLEENHYNIYISKKHAEKNWFIGLKKNGSSKLGPRIH 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20 LGNYKKPKLLYCSNGGYFLRILPDGRVDGTKDRSDQHIQLQLYAESIGEVYIKSTETGQF 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #formal_name Rattus norvegicus #common_name Norway rat
04-Mar-1993 #sequence_revision 18-Nov-1994 #text_change
20-Mar-1998
                                                                                                                                                                                                                                             #formal_name Ovis sp. #common_name sheep
17-Jun-1998 #sequence_revision 10-Jul-1998 #text_change
07-May-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ryudocan precursor - rat
amphiglycan; heparan sulfate proteoglycan core protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 907; DB 2; L. Pred. No. 7.64e-159;
                                                                                                                                                                                                      fiblobrast growth factor-1 - sheep
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                            by protein and cDNA analysis. #cross-references MUID:98262939 #accession JW0055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #type complete
                                                                                                                                                                                      complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #cross-references MUID:92165852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity 89.7%;
Matches 122; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      140 FGQKAILFLPLPVSSD 155
                                                                                                   281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ryudocan
                                                                                140 YGQKAILFLPLPVSAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #accession JW0005
##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A42410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A42410
                                                                                                                                                                                   JW0055
                                                                                                                                                                                                                                                                                                                             JW0055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ALTERNATE_NAMES
                                                                                                                                                                                                                         ALTERNATE_NAMES ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #authors
#journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                              #journal
#title
                                                                                                                                                              σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10
                                                                                                                                                                                                                                                                                                                                                  #authors
```

sequence extracted from NCBI backbone (NCBIN:84028,

US-09-121-017B-23.rpr

```
ò
                                    g
                                                                                  ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                 This protein plays a role in the cytoskeletal organization in relation to the extracellular microenvironment. chondroitin sulfate proteoglycan; core protein; glycoprotein; heparan sulfate; transmembrane protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##residues 1-198 ##label TSU ##coss-references DDBJ:D89571; NID:g2373476; PID:d1022994; PID:g2373477 # #cross-references DDBJ:D89571; NID:g2373476; PID:d1022994; PID:g2373477 # This protein plays a role in the cytoskeletal organization in relation to the extracellular microenvironment.

Chondroitin sulfate proteoglycan; core protein; glycoprotein; heparan sulfate; transmembrane protein
                                                                                                                     #domain signal sequence #status predicted #label SIG\
#product ryudocan core protein #status predicted #label
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #domain signal sequence #status predicted #label SIG\
#product ryudocan core protein #status predicted #label
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Tsuzuki, S.; Kojima, T.; Katsumi, A.; Yamazaki, T.; Sugiura, I.; Salto, H.
J. Biochem. (1997) 122:17-24
Molecular cloning, genomic organization, promoter activity,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      and tissue-specific expression of the mouse ryudocan gene-
                                                                                                                                                                                 #domain transmembrane #status predicted #label TMM\
#binding_site heparan sulfate (Ser) (covalent) #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #domain transmembrane #status predicted #label TMM\ #binding_site heparan sulfate (Ser) (covalent) #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61 D-FELSGSGDLDDTEEPRTFPEVISPLVPLDNHIPENAQPGIRVPSEPKELEENEVIPKR 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DDFELSGSGDLDDTEEPRPFPEVIEPLVPLDNHIPENAQPGIRVPSEPKELEENEVIPKR 116
                                                                                                                                                                                                                                                                                                                                                                          1 MAPVCLFAPLLLLLLGGFPVAPGESIRETEVIDPQDLLEGRYFSGALPDDEDAGGLEQDS 60
                                                                                                                                                                                                                                                                                                                                                                                             ryudocan precursor - mouse
amphigycan; core protein
#formal_name Mus musculus #common_name house mouse
23-5ep-1997 #sequence_revision 17-Oct-1997 #text_change
17-Mar-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 642; DB 2; Length 198;
Pred. No. 3.34e-103;
16; Mismatches 14; Indels 10; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 MAPACLLAPLLLLLGGFPLVPGESIRETEVIDPQDLLEGRYFSGALPDDEDA-G-G--S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            predicted
#length 198 #molecular-weight 21482 #checksum 3061
                                                                                                                                                                                                                             predicted
#length 202 #molecular-weight 21962 #checksum 264
                                                                                                                                                                                                                                                                                                                                   .
9
                                                                                                                                                                                                                                                                                       Length 202;
                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                     34.3%; Score 679; DB 2; Le
larity 73.5%; Pred. No. 6.80e-111;
Conservative 14; Mismatches 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                120 VPSDVGDDDVSNKVSMSSTSQGSNIFERTEV 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #type complete
NCBIP:84029)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 32.4%;
Best Local Similarity 73.5%;
Matches 111; Conservative
                                                                                                                                                              MAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MAT/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                           Local Similarity
nes 111; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JC5613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JC5613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JC5613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #accession
                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #journal
#title
                                                                                                                                                                                                       44,65,67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           44,62,64
                                                                                                                                                                                 150-174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSIONS
                                                                                                                                                                                                                                                                                                           Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     146-170
                                                                                                                           1-23
24-202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            24-198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                          KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KEYWORDS
                                                                                                   FEATURE
                                                                                                                                                                                                                                                SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SUMMARY
                   COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ç
```

```
Simpson, R.J.; Moritz, R.L.; Lloyd, C.J.; Fabri, L.J.; Nice, E.C.; Rubira, M.R.; Burgess, A.W. FEES Lett. (1987) 224:128-132 Primary structure of ovine pituitary basic fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##residues_______95-128 ##label MIT
##cross-references EMBL:X56804; NID:962855; PIDN:CAA401:9.1; PID:962856
FICATION #superfamily fibroblast growth factor #length 189 #molecular-weight 20312 #check:um 8538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ä
                                                                                                                                                                                                                                                                                                                              Borja, A.Z.; Meljers, C.; Zeller, R. Dev. Biol. (1993) 157:110-118 Expression of alternatively spliced bFGF first coding exons and antisense mRNAs during chicken embryogenesis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #journal Development (1990) 109:387-393 #title Fibroblast growth factor during mesoderm induction in the early chick embryo. #cross-references WIID:90382254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    147 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGFVYIKSTETGQYL 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  118 AMKEDGRILLALKCATEECFFFERLESNNYNTYRSRKYSD--WYVALKRIGQYKPGPKTGP 175
56 DDFELSGSGDLDDLEDSMIGPEVVHPLVPLDNHIPERAGSGSQVPTEPKKLEENEVIPKR 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          58 GHFKDPKRLYCKNGGFFLRINPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVSANRFL 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sequence extracted from NCBI backbone (NCBIN:131000,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                        A48834 #type complete
basic fibroblast growth factor - chicken
#formal_name Gallus gallus #common_name chicken
01-be-1993 #sequence_revision 18-Nov-1994 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #common_name domestic sheep
10.5ep-1999 #sequence_revision 10.5ep-1999 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #formal_name Ovis orientalis aries, Ovis ammon aries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 139;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred. No. 1.66e-78;
23; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mitrani, E.; Gruenbaum, Y.; Shohat, H.; Ziv,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 522; DB 2;
Pred. No. 1.66e-78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S00185 #type complete
basic fibroblast growth factor
prostatropin
                                                                117 -APSDVGDDMSNKVSMSSTAQGSNIFERTEV 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBIP:131001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##molecule_type nucleic acid
##residues 1-189 ##label ]
##experimental_source embryo
                                                                                                                                                                                                                                                                                                                                                                                                                    #cross-references MUID:93246053
#accession A48834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 26.4%;
Best Local Similarity 54.5%;
Matches 73; Conservative
                                                                                                                                                                                                                                                              16-Jul-1999
A48834; S23636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             10-Sep-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 176 GOKAILFLPMSAKS 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##molecule_type DNA
                                                                                                                                                                                                                                                                                                            A48834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      523636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S00185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S23636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S00185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CLASSIFICATION
SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##note
                                                                                                                                                                                                                                                                                                                                                      #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #journal
#title
                                                                                                                                                                                                                                                                                                                                 *authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSIONS
                                                                                                                                                                                                                                                                                     ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                               TITLE
ORGANISM
                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                      RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DATE
                                                                                                                                                                                                                                              DATE
```

```
##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #accession
                                                                                                                 #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #accession
                                                                                                                                                                                                                                                                                                                                                                                                          ##note
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #contents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
#authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                         #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #note
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #authors Abraham, J.A.; Mergia, A.; Whang, J.L.; Tumolo, A.; Friedman, J.; Hjerrild, K.A.; Gospodarowicz, D.; Fiddes, J.C.
#journal Science (1986) 233:545-548
#title Nucleotide sequence of a bovine clone encoding the anglogenic protein, basic fibroblast growth factor.
#cross-references MUID:86261806
                                                                                                                                                                                                                                                                                               ï
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##molecule_type mRNA
##residues 3-157 ##label ABR
##cross-references GB:M13440; NID:9163049; PIDN:AAA30518.1; PID:9163050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GKBOB #type fragment
basic fibroblast growth factor precursor - bovine (fragment)
bFGF; kidney-derived growth factor; prostatropin
#formal_name Bos primigenius taurus #common_name cattle
13-Aug-1986_#sequence_revision 02-Jun-1995 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Milner, P.G.; Li, Y.S.; Hoffman, R.M.; Kodner, C.M.; Siegel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Fiddes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #journal Cold Spring Harb. Symp. Quant. Biol. (1986) 51:657-668 #title Human basic fibroblast growth factor: nucleotide sequence, genomic organization, and expression in mammalian cells. #cross-references MUID:87217066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           75 AMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGPKTGP 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                      15 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Biochem. Biophys. Res. Commun. (1989) 165:1096-1103
A novel 17 kD heparin-binding growth factor (HBGF-8) in
bovine uterus: purification and N-terminal amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10-Sep-1999
A24663; A32878; A33784; A61550; A61551; A60310; A61094;
A01386; A60316; A22054; A24819
                                                                                                                                                      #region heparin binding #status predicted\
#region heparin binding #status predicted
#length 146 #molecular-weight 16434 #checksum 3560
                                                                                                                                                                                                                                                 Query Match 26.1%; Score 516; DB 1; Length 146; Best Local Similarity 55.2%; Pred. No. 2.77e-77; Matches 74; Conservative 22; Mismatches 36; Indels
                                                                                                                 growth factor; heparin binding; mitogen
                                                                   1-146 ##label SIM #superfamily fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##experimental_source pituitary gland NCE A90924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3-157 ##label AB2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N.R.; Deuel, T.F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #cross-references MUID:90121211
#accession A33784
#cross-references MUID:88055577
#accession S00185
                                       ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     133 GOKAILFLPMSAKS 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11111111: |
267 GQKAILFLPLPVSS 280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sednence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A33784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A24663
                                                                   ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
ALTERNATE_NAMES
                                                                                          CLASSIFICATION
                         #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #authors
                                                                                                                                                             18-22
107-110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                     SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                     ò
```

```
Proc. Natl. Acad. Sci. U.S.A. (1985) 82:6507-6511
Primary structure of bovine pituitary basic fibroblast growth factor (FGF) and comparison with the amino-terminal sequence of bovine brain acidic FMF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Baird, A.; Esch, F.; Boehlen, P.; Ling, N.; Gospodarowicz, D. Regul, Pept. (1985) 12:01-213
Isolation and partial characterization of an endothelial cell growth factor from the bovine kidney: homology with basic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Esch, F.; Baird, A.; Ling, N.; Ueno, N.; Hill, F.; Denoroy, L.; Klepper, R.; Gospodarowicz, D.; Bohlen, P.; Guillemin,
#authors Bertolini, J.; Hearn, M.T.W.
#journal Mol. Cell. Endocrinol. (1987) 51:187-199
#title Isolation, characterisation and tissue localisation of an N-terminal-truncated variant of fibroblast growth factor.
#cross-references MUID:87247652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #journal Regul. Pept. (1986) 16:135-145
#title Purification and partial characterization of a mitogenic factor from bowine liver: structural homology with basic #cross-references WUD:87119165
#accession A60310
                                                                                                                                                                                                                                                                                          #authors Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R.
#journal Mol. Cell. Endocrinol. (1987) '49:189-194
#title Isolation and partial characterization of basic fibroblast
growth factor from bovine testis.
#cross-references MUID:87162856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gospodarowicz, D.; Baird, A.; Cheng, J.; Lui, G.M.; Esch,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #journal Endocrinology (1986) 118:82-90
#title Isolation of fibroblast growth factor from bovine adrenal gland: physicochemical and biological characterization.
#cross-references WUID:86081530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    this form appears to be identical to the renal form
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             the amino end of this form was blocked; the peptide composition matched what was thought to be the signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #authors Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R. #journal Biochem. Biophys. Res. Commun. (1986) 138:580-588 #title Isolation of an amino terminal extended form of basic #cross-references MUID:86295737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ueno, N.; Baird, A.; Esch, F.; Shimasaki, S.; Ling,
Guillemin, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12-25,27-35,'X',37-40 ##label GOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                      #accession A61551
##molecule_type protein
##residues 27-35,'X',37-41 ##label UE3
##experimental_source testes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##molecule_type protein
##residues 23-35,'X',37-42 ##label UEN
##experimental_source liver
SNCE A24819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #cross-references MUID:86095426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##experimental_source pituitary gland
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##experimental_source adrenal gland
NNCE A01386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          12-157 ##label ESC
                                                                                                                                                                                             ##molecule_type protein
##residues 16-35 ##label BER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #cross-references MUID:86016731
#accession A01386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bohlen, P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sedneuce
                                                                                                                                                                                                                                                            A61551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A60310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A61094
```

```
##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##status
                                 #accession
                                                                                                                                                                                                                                                                                  #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #accession
                                                                                                                                                                            #journal
#title
                                                                                                                                                       #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10-154
                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         윰
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #product basic fibroblast growth factor, uterine form
#status predicted #label MATI\
#product basic fibroblast growth factor, pituitary gamma
form #status experimental #label MAT2\
#product basic fibroblast growth factor, pituitary alpha
form #status experimental #label MAT3\
#product basic fibroblast growth factor, pituitary short
form #status predicted #label MAT4\
#product basic fibroblast growth factor, hepatic form
#status experimental #label MAT5\
#product basic fibroblast growth factor, renal form
#status experimental #label MAT6\
#region heparin binding #status predicted\
#region heparin binding #status predicted\
#region heparin binding #status action
pituitary gamma) (probably acetylated) #status
experimental
#length 157 #checksum 1115
##molecule_type protein
#fresidues 27.35,'X',37-43 ##label BAI
#fresidues 27.35,'X',37-43 ##label BAI
#fresidues 27.35,'X',37-43 ##label BAI
#fresidues 27.35,'X',37-43 ##label BAI
#fresidues A22054
#fauthors A22054
#fournal Bohlen, P.; Baird, A.; Esch, F.; Ling, N.; Gospodarowicz, D.
#fournal Proc. Natl. Acad. Sci. U.S.A. (1984) #1:5364-5368
#fille Isolation and partial molecular characterization of pituitary
#cross-references MUID:84298139
#accession A22054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Shimasaki, S.; Emoto, N.; Koba, A.; Mercado, M.; Shibata, F.; Cooksey, K.; Baird, A.; Ling, N. Blochem. Blochys. Res. Commun. (1988) 157:256-263 Complementary DNA cloning and sequencing of rat ovarian basic fibroblast growth factor and tissue distribution study of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ĥ
                                                                                                                                                                                                                                            ##nolecule_type protein
##residues
12-26 ##label BOH
##residues
NT The acidic and basic fibroblast growth factors are the major
endothelial-cell growth factors. Both are angiogenic agents in
vivo and are potent mitogens for a variety of mesoderm-derived
cell types in vitro (although bFGF is 30-100 times more potent
than aFGF in stimulating the proliferation of normal diploid
                                                                                                                                                                                                                                                                                                                                                                                                                                                 This protein binds heparin more strongly than does aFGF.

#Superfamily fibroblast growth factor
alternative splicing; angiogenesis; growth factor; heparin
binding; mitogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          86 AMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGPKTGP 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      26 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #formal_name Rattus norvegicus #common_name Norway rat
21_May-1990_#sequence_revision 21-May-1990 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 516; DB 1; Length 157;
Pred. No. 2.77e-77;
22; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A31674 #type complete
basic fibroblast growth factor precursor
bFGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A31674; S00876; S24309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 26.1%;
Best Local Similarity 55.2%;
Matches 74; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        111111111: 1
267 GOKAILFLPLPVSS 280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           144 GOKAILFLPMSAKS 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          its mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                  cells)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          29-33,118-121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #authors
                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               16-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             23-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           27-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURE
1-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SUMMARY
                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
```

```
#authors El-Husseini, A.E.D.; Paterson, J.A.; Myal, Y.; Shiu, R.P.C. #journal Biochim. Biophys. Acta (1992) 1131:314-316
#title PCK detection of the rat brain basic fibroblast growth factor (bFGF) mRNA containing a unique 3' untranslated region.
                                                                                  SHI
NID:g204285; PIDN:AAA41210.1; PID:g204286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##residues 35-154 ##label ELH ##cross.references EMBL.X61697; NID:956143; PIDN:CAA43863.1; PID:956144 FICATION #superfamily fibroblast growth factor growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ä
                                                                                                                                                                                                                                                                                                                                                                   147 ANYKRPKLIYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVIKSTETGQYL 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  83 AMKEDGRLIASKCVTEECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGSKTGP 140
                                                                                                                                                                 Kurokawa, T.; Seno, M.; Igarashi, K.
Nucleic Acids Res. (1988) 16:5201
Nucleotide sequence of rat basic fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               207 AMDIDGLIYGSQIPNEECLFLERLEENHYNIYISKKHAEKNWFVGLKKNGSCKRGPRIHY 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     23 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYL 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #domain signal sequence #status predicted #label #product basic fibroblast growth factor #status predicted #label MAT #region #length 154 #molecular-weight 17139 #checksum 3026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 25.7%; Score 508; DB 2; Length 154 Best Local Similarity 54.5%; Pred. No. 1.18e-75; Matches 73; Conservative 23; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               preliminary; translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Search completed: Tue Aug 29 16:05:56 2000 Job time: 79 secs.
                                            ##molecule_type mRNA
##residues 1-154 ##label
##cross-references GB:M22427;
                                                                                                                                                                                                                                                                                 *cross-references MUID:88262516
*accession S00876
#cross-references MUID:89061721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  141 GQKAILFLPMSAKS 154
                                                                                                                                                                                                                                                                                                                                      ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##molecule_type mRNA
                                                                                                                                                                                                                                                         CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                           $24309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S24309
                          A31674
```

, 

*****	(TM)	******
****		*****
****	''	*****
*****		******
******		*******
*****		*******
******		*******
*******	<u> </u>	*******
********************************	1	***************************************

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

MasPar time 10.20 Seconds 853.576 Million cell updates/sec Tue Aug 29 16:00:57 2000; . . . .

protein - protein database search, using Smith-Waterman algorithm

MPsrch\_pp

bular output not generated.

>US-09-121-017B-23 (1-281) from US09121017B:pep 1980 Description: Perfect Score:

1 MAPARLFALLLFFVGGVAES......PRTHYGQKAILFLPLPVSSD 281 Sequence:

PAM 150 Gap 11 Scoring table:

85661 seqs, 30989116 residues Searched:

Minimum Match 0% Listing first 45 summaries Post-processing:

ewassaprot38 1:swissprot Database:

Mean 47.651; Variance 81.808; scale 0.582 Statistics:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

Pred. No.	9.50e-201	1.41e-198	1.77e-194	1.//e-194 / 17e-191	1.10e-182	1.90e-182	1.00e-125	5.16e-117	4.70e-89	1.14e-87	1.14e-87	7.91e-86	7.91e-86	4.66e-86	1.58e-83	1.83e-81	3.34e-76	1.79e-55	2.18e-50	2.18e-50	3.61e-50	1.43e-45
Description		_	_	HEDARIN-BINDING GROWTH	_	HEPARIN-BINDING GROWTH	SYNDECAN-4 PRECURSOR (	SYNDECAN-4 PRECURSOR (	HEPARIN-BINDING GROWTH	GLIA-ACTIVATING FACTOR	GLIA-ACTIVATING FACTOR	GLIA-ACTIVATING FACTOR	GLIA-ACTIVATING FACTOR	FIBROBLAST GROWTH FACT								
Ü	SDC4_HUMAN	FGF1_HUMAN	FGF1_MOUSE	FGF1_MESAU	FGF1_BOVIN	FGF1_CHICK	SDC4_RAT	SDC4_MOUSE	FGF2_CHICK	FGF2_SHEEP	FGF2_BOVIN	FGF2_RAT	FGF2_MOUSE	FGF2_HUMAN	FGF2_MONDO	FGF2_XENLA	FGF2_RABIT	FGF9_XENLA	FGF9_HUMAN	FGF9_RAT	FGF9_MOUSE	FGFG_HUMAN
DB	н,	н,	٠,	٦.	-	-	1	Н	Н	Н	Н	Н	Н	٦	Н	-	ч	Н	-	Н	Н	7
Length	198	155	חות ל	152	155	155	202	198	158	155	155	154	154	155	156	155	137	209	208	208	208	207
% Query Match	50.2	7.0	20 c	4.04.00 0.00	46.4	46.3	34.3	32.4	26.4	26.1	26.1	25.7	25.7	25.7	25.2	24.7	23.5	18.9	17.7	17.7	17.7	16.6
Score	993	986	700	900	918	917	619	642	522	516	516	208	508	209	498	489	466	374	351	351	350	329
ult No.	н (	7	v) •	4 10	ø	7	æ	σ	10	11	12	13	14	15	16	17	18	19	20	21	22	23

		_	_																				
		3.30e-30	2.04e-30	1.85e-31	7.05e-32	1.02e-32	3.88e-33	1.47e-33	9.05e-34	1.47e-33	3.43e-34	3.43e-34	5.57e-34	2.11e-34	7.95e-35	1.13e-35	1.13e - 35	1.13e - 35	9.78e-37	6.05e-40	1.15e-41	2.57e-42	1.75e-44
198 AA.		FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	GROWTH	SYNDECAN-4 PRECURSOR.	_	FIBROBLAST GROWTH FACT	KERATINOCYTE GROWTH FA	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	KERATINOCYTE GROWTH FA	KERATINOCYTE GROWTH FA	KERATINOCYTE GROWTH FA	FIBROBLAST GROWTH FACT							
PRT; 1	ALIGNMENTS	FGFB_MOUSE	FGF6_HUMAN	FGFB_HUMAN	SDC4_CHICK	FGF5_HUMAN	FGF3_BRARE	FGFE_HUMAN	FGFE MOUSE	FGFA_MOUSE	FGF4_BOVIN	FGF4_CHICK	FGFB_XENLA	FGFA_HUMAN	FGF7_RAT	FGF5_RAT	FGF5_MOUSE	FGFA_RAT	FGFA_XENLA	FGF7_MOUSE	FGF7_HUMAN	FGF7_SHEEP	FGFG_RAT
STANDARD;		225 1		225		268		247	247	209	206	194			194 1		264 1			194 1	194 1	194 1	207 1
T 1 SDC4_HUMAN		257 13.0	-	263 13.3	13		13	13.	274 13.8	13.	13.	13.	1	277 14.0	279 14.1	283 14.3	283 14.3	283 14.3	288 14.5	٦	311 15.7	314 15.9	_
RESULT ID SDC4		45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	53	28	27	56	25	24

David G., van der Schueren B., Marynen P., Cassiman J.-J., van den Berghe H.; van den Berghe H.; "Molecular cloning of amphiglycan, a novel integral membrane heparan sulfate proteoglycan expressed by epithelial and fibroblastic Gells." Kojima T., Inazawa J., Takamatsu J., Rosenberg R.D., Saito H.; "Human ryudocan core protein: molecular cloning and characterization of the cDNA, and chromosomal localization of the gene."; Biochem. Biophys. Res. Commun. 190:814-822(1993). 01-JUL-1993 (Rel. 26, Created)
Last sequence update)
15-TEB-2000 (Rel. 39, Last annotation update)
SYNDECAN-4 PRECURSOR (AMPHIGLYCAN) (SYND4) (RYUDOCAN CORE PROTEIN). Euteleostom1; Homo sapiens (Human). Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Butele Mammalia; Eutheria; Primates; Catarrhin1; Hominidae; Homo (1)
SEQUENCE FROM N.A.
TISSUE-LUNG FIBROBLAST;
MEDLINE; 92363936. 016833; 000773; J. Cell Biol. 118:96
[2]
SEQUENCE FROM N.A.
MEDLINE; 93176185. REEN TO THE TRANSPORT OF THE PROPERTY OF THE P

Takagi A., Kojima T., Tsuzuki S., Katsumi A., Yamazaki T., Sugiura I., Hamaguchi M., Saito H.; "Structural orcanization and promoter activity of the human ryudocan Biochem. 119:979-984(1996). SEQUENCE FROM N.A. TISSUE-PLACENTA; MEDLINE; 96390006. gene.

SUBDITIED (APR-1999) to the EMBL/GenBank/DDBJ databases.
-!- FUNCTION: CELL SURFACE PROTEOGLYCAN THAT BEAR HEPARAN SULFATE.
-!- SUBCELLULAR LOCATION: TYPE I MEMBRANE PROTEIN.
-!- TISSUE SPECIFICITY: EXPRESSED IN EPITHELIAL AND FIBROBLASTIC

SEQUENCE FROM N.A.

Bridgeman A.;

SIMILARITY: BELONGS TO THE SYNDECAN FAMILY OF INTEGRAL MEMBRANE PROTEOGLYCANS.

```
SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE;
                                                                                                                                                                          factor.
 factor
                                                                                                                                                                                                                                                                                                                                                                                                                             cells
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bloinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                   (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FGF1_HUMAN STANDARD; PRT; 155 AA.
P05230; P07502;
13-AUG-1987 (Rel. 05, Created)
13-AUG-1997 (Rel. 05, Last sequence update)
115-UTL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST GROWTH FACTOR) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) (EGGF-
                                                                                                                                                                                                                                                             (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                    61 SGSGDLDDLEDSMIGPEVVHPLVPLDNHIPPERAGSGSQVPTEPKKLEENEVIPKRISPVE 120
                                                                                                                                                                                                                                                                                                                                                                                                      61 SGSGDLDDLEDSMIGPEVVHPLVPLDNHIPERAGSGSQVPTEPKKLEENEVIPKRISPVE 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TISSUE-BRAIN STEM;
MEDLINE: 89343957.
MEDLINE: 89343957.
MEDLINE: 9343957.
"Cloning of the gene coding for human class 1 heparin-binding growth
                                                                                                                                                                                                                                                                                                                                                                       1 MAPARLFALLLFFVGGVAESIRETEVIDPQDLLEGRYFSGALPDDEDVVGPGQESDDFEL 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Jaye M., Howk R., Burgess W., Ricca G.A., Chiu I.-M., Ravera M.W., O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide sequence, and chromosome localization."; Science 233:541-545(1986).
                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                  Transmembrane; Glycoprotein; Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Euteleostomi;
                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                   DB 1; Length 198;
                                                                                                                                                                                                                                                 O-LINKED (GLYCOSAMINOGLYCAN)
O-LINKED (GLYCOSAMINOGLYCAN)
O-LINKED (GLYCOSAMINOGLYCAN)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Eutele
Mammalia, Eutheria, Primates, Catarrhini, Hominidae, Homo
                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                       SYNDECAN-4.
EXTRACELLULAR (POTENTIAL).
POTENTIAL.
CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                                 -> L (IN REF. 1).
8229AA2733F77A10 CRC64;
                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                            Pred. No. 9.50e-201;
                                                                                                                                                                                                                                                                                                                                       0; Mismatches
                                                                                                                                                                                                                                                                                                                   Score 993;
                                                                                                                                                                                               POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                               Proteoglycan; Heparan sulfate;
                                                                                                                                                           PFAM; PF01034; Syndecan; 1.
PROSITE; PS00964; SYNDECAN; 1.
                                                                                                                                                                                                                                                                                  12 F
21641 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FGF1 OK FOLD.

Homo sapiens (Human).

Metazoa; Chordata;

Metazoa; Chordata;
                                                                                            EMBL; X67016; CAA47406.1; -. EMBL; D13292; BAA02550.1; -. EMBL; D79206; BAA19613.1; -. EMBL; AL011578; CAA16520.1; -. PIR; S26695; S26695
                                                                                                                                                                                                                                                                                                                 Query Match 50.2%;
Best Local Similarity 100.0%;
Matches 146; Conservative
                                                                                                                                                                                                       198
170
170
39
39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               [1]
SEQUENCE FROM N.A.
MEDLINE; 86261805.
                                                                                                                                                                                                                                                                                           198 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                  DOMAIN
TRANSMEM
                                                                                                                                                                                                                                                                                 CONFLICT
                                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                       DOMAIN
                                                                                                                                                                                            SIGNAL
                                                                                                                                                                                                         CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STTTTES
                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                움
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
```

```
Wang W.P., Quick D., Balcerzak S.P., Needleman S.W., Chiu I.M.; "Cloning and seguence analysis of the human acidic fibroblast growth factor gene and its preservation in leukemia patients."; Oncogene 6:1521-1529(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Harper J.W., Strydom D.J., Lobb R.R.; "Human class 1 heparin-binding growth factor: structure and homology to bovine acidic brain fibroblast growth factor."; Biochemistry 25:4097-4103(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE; 94069734.
Zhao X.M., Yeoh T.K., Hiebert M., Frist W.H., Miller G.G.;
The expression of acidic fibroblast growth factor (heparin-binding growth factor.i) and cytokine genes in human cardiac allografts and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mergia A., Tischer E., Graves D., Tumolo A., Miller J.,
Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;
"Structural analysis of the gene for human acidic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "An acidic fibroblast growth factor protein generated by alternate splicing acts like an antagonist.";
                                                                                                                                                                                                                                                         two forms of mRNA coding for human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQÜENCE OF 16-155.
MEDLINE: 87048871.
Gautschi-Sova P., Mueller T., Boehlen P.;
"Amino acid sequence of human acidic fibroblast growth factor.";
Biochem. Biophys. Res. Commun. 140:874-880(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.;
"Human brain-derived acidic and basic fibroblast growth factors:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Crumley G., Dionne C.A., Jaye M.; "The gene for human acidic fibroblast growth factor encodes two upstream exons alternatively spliced to the first coding exon."; Biochem. Biophys. Res. Commun. 171:7-13(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.;
"The complete amino acid sequence of human brain-derived acidic
fibroblast growth factor.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Li Y.L., Kha H., Golden J.A., Migchielsen A.A.J., Goetzl E.J.,
Turck E.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Biochem. Biophys. Res. Commun. 164:1121-1129(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Biochem. Biophys. Res. Commun. 138:611-617(1986).
or and its expression in fetal tissues."; Cell. Biol. 9:2387-2395(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ransplantation 56:1177-1182(1993).
                                                                                                                                                                                                                   Chiu I.M., Wang W.P., Lehtoma K.;
*Alternative splicing generates two
heparin-binding growth factor 1.";
Oncogene 5:755-762(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       splicing acts like an antagonist.
J. Exp. Med. 175:1073-1080(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE OF 1-154 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE OF 1-40 FROM N.A. MEDLINE; 90365758.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE OF 16-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE OF 16-155.
MEDLINE; 86295741.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE OF 16-47. MEDLINE; 86186784.
                                                                                                         N.A.
                                                                                                                                               TISSUE-BRAIN STEM;
MEDLINE; 90265618.
                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A. MEDLINE; 90073637.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A. MEDLINE; 92019819.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A. MEDLINE; 92202857.
```

amino

MEDLINE;

```
Nucleic Acids Res. 17:2867-2867(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 15 HE 155 HE 2 2 AC 28 HE 113 116 HE 155 AM; 17460 MW; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               49.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity 99.3%;
les 134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    141 GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GOKAILFLPLPVSSD 281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GROWTH FACTOR) (AFGF).
FGF1 OR FGF-1 OR FGFA.
                                                                      ; 2AFG; 15-OCT-95.
; 1AXM; 22-APR-98.
; 2AXM; 22-APR-98.
; 1RML; 11-NOV-98.
                                                                                                                                                                                                                                                          PFAM; PF00167; FGF; 1
   A33665; A33665
                                           S18217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A. SPECIES-MOUSE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SPECIES-MOUSE;
MEDLINE; 90201563.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE; 97128312
                                                                                                                                                                                                                                                                                                                                                                                                                                                             3D-structure.
                                                                                                                                                                                                                              131220;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LT 3
FGF1_MOUSE
P10935;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SPECIES-RAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MOD_RES
BINDING
BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (HBGF-1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CHAIN
                                                                                                                                                    PDB;
PDB;
                                       PIR;
PDB;
PDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           267
                                                                                                                                                                                                                              MIM;
   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HID DOLL THE SECOND SEC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMEG outstation the European Bloinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@lsb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Lozano R.M., Jimenez M., Santoro J., Rico M., Gimenez-Gallego G.;
"Solution structure of acidic fibroblast growth factor bound to 1,3,
"Solution structure of acidic fibroblast growth factor bound to 1,3,
"Solution structure of acidic fibroblast growth factor bound to 1,3,
action of suramins and suradistas.";
J. Mol. Biol. 281:895-915(1998).
-!- FUNCTION: THE HEPPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                          mitogens from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -!- MISCELLANDOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY THAN DOES BFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                              Blaber M., Disalvo J., Thomas K.A.;
"X-ray crystal structure of human acidic fibroblast growth factor.";
Blochemistry 35:2086-2094(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pineda Lucena A., Jimenez M.A., Nieto J.L., Santoro J., Rico M., Gimenez-Gallego G.; Inenez-Gallego G.; Inen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pineda-Lucena A., Jimenez M.A., Lozano R.M., Nieto J.L., Santoro J., Rico M., Gimenez-Gallego G.; "Three-dimensional structure of acidic fibroblast growth factor in Solution: effects of binding to a heparin functional analog."; J. Mol. Biol. 264:162-178(1996).
mino terminal sequences and specific mitogenic activities."; iochem. Biophys. Res. Commun. 135:541-548(1986).
                                                                                                                                                                            Gautschi P., Frater-Schroeder M., Boehlen P.; "Partial molecular characterization of endothelial cell mi human brain: acidic and basic fibroblast growth factors.";
                                                                                                                                                                                                                                                                                                                                                                           K-RAY CRYSTALLOGRAPHY (2.0 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAA52638.1; JOINED.
AAB29057.1; -.
CAA46661.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAA52446.1; JOINED AAA52446.1; JOINED
                                                                                                                                                                                                                                                                                                 FEBS Lett. 204:203-207(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; M13361; AAA79245.1; -. EMBL; X51943; CAA36206.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRUCTURE BY NMR OF 25-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRUCTURE BY NMR OF 24-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRUCTURE BY NMR OF 24-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAA51673.1;
AAA52638.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAA52446.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAA51672.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A24301.
A24662.
A24820.
A26386.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A24243
                                                                                                                                                                                                                                                                                                                                                                                                                      96194129.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE; 94358885.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE; 97107535.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE; 98387896.
                                                                                                             SEQUENCE OF 16-49.
                                                                                                                                                MEDLINE; 86275260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              M30490;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         M30491;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        M60515;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              M30492;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           M60516;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 M23086;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A24820;
A26386;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  M23087
```

EMBL; EMBL;

EMBL;

EMBL;

EMBL; EMBL; EMBL; EMBL; EMBL;

PIR; PIR;

PIR; PIR; PIR;

PRINTS; PR00262; ILJHBGF. PRINTS; PR00263; HBGFFGF. PROSITE; PS00247; HBGF\_FGF; 1. Growth factor; Mitogen; Vascularization; Heparin-binding; Acetylation; AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 140 1007 AMDIDGLLYGSQIPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 266 Hebert J.M., Basilico C., Goldfarb M., Haub O., Martin G.R.; "Isolation of cDNAs encoding four mouse FGF family members and characterization of their expression patterns during embryogenesis."; Biol. 138:454-463(1990). 147 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 206 01-JUL-1989 (Rel. 11, Created)
01-JUL-1989 (Rel. 11, Last sequence update)
15-JUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST 80 0; Gaps 21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL Mus musculus (Mouse), and Rattus norvegicus (Rat). Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus. MEDIINE; 89240051. Goodrich S., Yan G.C., Bahrenburg K., Mansson P.E.; "The nucleotide sequence of rat heparin binding growth factor 1 HEPARIN-BINDING GROWTH FACTOR 1 Length 155; 0; Indels Madial F., Hackshaw K.V., Chiu I.M.; "Cloning and characterization of the mouse Fgf-1 gene."; Gene 179:231-236(1996). HEPARIN (POTENTIAL). HEPARIN (POTENTIAL). F586E8BFB09F1580 CRC64; Score 984; DB 1; Le Pred. No. 1.41e-198; 1; Mismatches 0; 155 AA. ACETYLATION

ö

gene and cDNA

H., Harris

```
SEQUENCE OF 22-41.
MEDLINE: 89231704.
Quinkler W., Waasberg M., Bernotat-Danielowski S., Luethe N.,
Sharma H.S., Schaper W.;
"Isolation of heparin-binding growth factors from bovine, porcine and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -1- SUBUNIT: MONOMER.
-!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         207 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-FEB-1996 (Rel. 33, Last sequence update)
15-JUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST GROWTH FACTOR) (AFGF) (ALPHA-ENDOTHELIAL CELL GROWTH FACTOR)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                81 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY. PIR, A60721; A60721.
HSSP: P00230; ZAXM.
HSSP: P00230; ZAXM.
PRINTS; PR00265; ILHBGF.
PRINTS; PR00265; HBGFEFGF.
PROSITE; PS00247; HBGFEFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Schmidt M., Sharma H.S., Schott R.J., Schaper W.; "Amplification and sequencing of mRNA encoding acidic fibroblast growth factor (aRGF) from porcine heart."; Blochem. Blophys. Res. Commun. 180:853-859(1991).
                                                                                                                                                                                                                            and its modulation by steroids.";
J. Cell. Biochem. 4:17-26(1990).
-!- FONGTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC.
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Growth factor; Mitogen; Vascularization; Heparin-binding.
PROPEP 1 15 BY SIMILARITY.
CHAIN 16 155 HEPARIN'BINDING GROWTH FACTOR 1.
BINDING 24 28 HEPARIN (POTENTIAL).
BINDING 113 116 HEPARIN (POTENTIAL).
SEQUENCE 155 AA; 17403 MW; 41E5EC760E412CC5 CRC64;
                                                                                                                                                        Hall J.A., Harris M.A., Malark M., Mansson P.E., Zhou H. "Characterization of the hamster DDT-1 cell aFGF/HGBF-I and its modulation by steroids.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sus scrofa (P1g).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 967; DB 1; L
Pred. No. 1.77e-194;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              152 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-FEB-1991 (Rel. 17, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity 97.0%;
Matches 131; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .
STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         141 GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     THAN DOES BFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM .N.A.
                                                [1]
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE; 92062117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FGF1 OR FGF-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TISSUE-HEART
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LT 5
FGF1_PIG
P20002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (FRAGMENT)
                                                                                                                            MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
        SO DRAW BY THE FILL BY THE BY 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              THE SET OF 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                         AGENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-FEB-1994 (Rel. 28, Created)
01-FEB-1994 (Rel. 28, Last sequence update)
15-UUL-1999 (Rel. 38, Last annotation update)
1F-UUL-1990 (Rel. 38, Last annotation update)
GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LAMDTEGLLYGSQTPNEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGPRTH 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQY 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mesocricetus auratus (Golden hamster).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
                                                                                                                                                                                                growth factor
                                                                                                                                                                                                                                and its expression in the adult and developing mouse brain..;
J. Biol. Chem. 271:30263-30271(1996)
-!- FUNCTION: THE HEPARIN-BINDING GROWH FACTORS ARE ANGIGGENIC
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                        Alam K.Y., Frostholm A., Hackshaw K.V., Evans J.E., Rotter A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HEPARIN-BINDING GROWTH FACTOR 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MGD; MGI:95515; FGF1.
PFRM; PF00167; FGF1.
PRINTS; PR001667; ILLHBGF.
PRINTS; PR00263; HBGFFGF.
PRINTS; PR00263; HBGFFGF.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
8880E4FF0FBA4161 CRC64;
                                                                                                                                                                                                    "Characterization of the 1B promoter of fibroblast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 967; DB 1; LA
Pred. No. 1.77e-194;
4; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            155 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       M30641; AAA37618.1; -.
U36459; AAC52969.1; -.
U36457; AAC52969.1; JOINED.
U36458; AAC52969.1; JOINED.
U67610; AAC52907.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17418 MW;
SEQUENCE FROM N.A.
SPECIES-MOUSE; STRAIN-BALB/C;
MEDLINE; 97094746.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; X14232; CAA32448.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 48.8%;
Best Local Similarity 95.6%;
Matches 130; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       140 YGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15
155
28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SUBUNIT: MONOMER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PIR; S04147; S04147. PIR; D37360; D37360.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             113 1
155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FGF1 OR FGF-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 4
ID FGF1_MESAU
                                                                                                                                                                Chiu I.M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                P34004;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL;
```

20

80 206

ŏ q δ g ò ö

Gaps

ö

Length 155; 2; Indels Euteleostomi; Sus.

S

```
factors.'
    This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
               EUI. J. Biochem. 181:67-73(1989).
-!- FUNCTION: THE HEPARIN BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TISSUE-RETINA;
MEDILINE; 800813506.
Halley C., Courtois Y., Laurent M.;
"Nucleotide sequence of bovine acidic fibroblast growth factor cDNA.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         23-OCT-1986 (Rel. 02, Created)
01-MAR-1989 (Rel. 10, Last sequence update)
15-JUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBEF-1) (ACIDIC FIBROBLAST GROWTH FACTOR) (PROSTATROPIN) (ENDOTHELIAL CELL GROWTH FACTOR
BETA AND ALPHA CHAINS) (ACIDIC EYE-DERIVED GROWTH FACTOR II) (EDGF
                                                                                                                    SUBUNIT: MONOMER.
MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
THAN DOES BEGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  81 AMDISGLLYGSQTPSEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bos taurus (Bovine).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ENDOTHELIAL CELL GROWTH FACTOR ALPHA. HEPARIN (POTENTIAL). HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HEPARIN-BINDING GROWTH FACTOR 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 953; DB 1; Length 152;
Pred. No. 4.17e-191;
2; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  17103 MW; AE853B0A92F9ABF4 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -> S (IN REF. 2)
-> Y (IN REF. 2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     155 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OR FGF-1 OR FGFA OR HBGF-1 OR AFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                             HSSP, P05230; 2AXM.
PFAM; PF00167; FGF; 1.
PROSITE; PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                          EMBL; X60317; CAA42869.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           48.1%;
llarity 97.0%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      >152
>152
>152
28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      141 GOKAILFLPLPV 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bovidae; Bovinae; Bos
                                                                                                                                                                                                                                                                                                                                                                                                                S03954; S03954.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               152 1
152 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Local Similarity
Matches 128; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LT 6
FGF1_BOVIN
P03968;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FGF1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 110 PRO 110 PRO
##$$$$$$$$$$$$$$$$$$$
                                                                                                                                                                                                                                                                                                                                                                                                                                              RANTTTTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
```

```
AGENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "Isolation of heparin-binding growth factors from bovine, posscine and canine hearts.";
                                                                                                                                                                                                                                                                                                                                                              Burgess W.H., Mehlman T., Marshak D.R., Fraser B.A., Mactag T.; "Structural evidence that endothelial cell growth factor beta is the precursor of both endothelial cell growth factor alpha and acidic fibroblast growth factor." Fibroblast growth factor." N. 83:7216-7220(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Disalvo J., Thomas K.;
"Brain-derived acidic fibroblast growth factor: complete amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE; 91095993.
Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
Hsu B.T., Rees D.C.;
"Three-dimensional structures of acidic and basic fibroblast growth
                                                                                                                                                Alterio J., Halley C., Brou C., Soussi T., Courtois Y., Laurent M.;
Characterization of a bovine acidic FGF CDNA clone and its
expression in brain and retina.";
FEBS Lett. 242:41-46(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Crabb J.W., Armes L.G., Carr S.A., Johnson C.M., Roberts G.D.,
Bordoli R.S., McKeehan W.L.;
"Complete primary structure of prostatropin, a prostate epithelial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -!- FUNCTION: THE HEPAKIN-BINDING GROWTH FACTORS ARE ANG!OGENIC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES VITRO. THESE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ouinkler W., Maasberg M., Bernotat-Danielowski S., Luethe N.,
Sharma H.S., Schaper W.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gimenez-Gallego G., Rodkey J., Bennett C., Rios-Candelore M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE; 86055750.
Boehlen P., Esch F., Baird A., Gospodarowicz D.;
Acidic fibroblast growth factor (FGF) from bovine brain:
amino-terminal sequence and comparison with basic FGF.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 1-18 FROM N.A.
Philippe J.M., Renaud F., Desset S., Laurent M.;
Submitted (JUL-1992) to the EMBL/GenBank/DDBJ databases.
Nucleic Acids Res. 16:10913-10913(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE OF 16-44, AND COMPOSITION.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Biochem. 181:67-73(1989)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Biochemistry 25:4988-4993(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Science 230:1385-1388(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE OF 16-56 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBO J. 4:1951-1956(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Science 233:545-548(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Science 251:90-93(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      homologies
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 16-155.
MEDLINE; 86070224.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE OF 16-45.
MEDLINE; 89231704.
                                                         SEQUENCE FROM N.A.
                                                                                         TISSUE=RETINA;
MEDLINE; 89078619.
                                                                                                                                                                                                                                                                                                       SEQUENCE OF 2-155
MEDLINE; 87016918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE OF 2-155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE; 87026586
                                                                                                                                                                                                                                                                                                                                          87016918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sednence and
```

ဖ

ö

Gaps

ö

5; Indels

```
124; Conservative
                                                                                               140 FGQKAILFLPLPVSSD 155
                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                            22-48
                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE; 88296438
                                                                                                                                                                                                                            OR FGF-1
                                                                                                                                             LT 7
FGF1_CHICK
P19596;
                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE OF
                                                                                                                                                                                                                                                                 Gallus.
                                                        80
 Matches
                                     ò
                                                       요
                                                                            õ
                                                                                             g
                                                                                                                  ò
                                  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its way non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities regulres a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                 PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFEGF.
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding; Acetylation; 3D-structure.
MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
         THAN DOES BEGF.
                                                                                                                                                                                                                                                                                                                                          ENDOTHELIAL CELL GROWTH FACTOR BETA. HEPARIN-BINDING GROWTH FACTOR 1. ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 918; DB 1; Length 155; Pred. No. 1.10e-182;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              17493 MW; F636641F189F9BFD CRC64;
                                                                                                                                                                                                                                                                                                                                                                       ACETYLATION.
HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
                                                                                                                                   X14032; CAA32192.1;
X35608; AAA30517.1;
X6446; CAA47063.1;
X97661; AAA30563.1;
Y97661; AAA30564.1;
                                                                                                                EMBL; M13439; AAA30516.1; -. EMBL; X13221; CAA31610.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                46.4%;
91.2%;
                                                                                                                                                                                                                                  PIR; B24663; B24663.
PIR; S02102; S02102.
PDB; IBAR; 31-OCT-93.
PDB; IAFC; 31-OCT-93.
PFAM; PF00167; FGF; 1
                                                                                                                                                                                                       B25043.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     147
155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                              A25043
                                                                                                                                                                                                                            A24477
                                                                                                                                                                                              A25043;
                                                                                                                                                                                                                 C25043;
                                                                                                                                                                                                                           A24477;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TURN
STRAND
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                            CHAIN
MOD_RES
BINDING
BINDING
                                                                                                                                                                                                                                                                                                                                                                                                   STRAND
TURN
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                  HELIX
STRAND
STRAND
STRAND
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HELIX
STRAND
STRAND
TURN
STRAND
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAND
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAND
                                                                                                                                                                                                                                                                                                                                  PROPEP
                                                                                                                                              EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                            CHAIN
                                                                                                                                      EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JELIX
                                                                                                                                                                 EMBL;
                                                                                                                                                                          EMBL;
                                                                                                                                                                                                                          PIR;
PIR;
PIR;
                                                                                                                                                                                                                                                                                                                                                                                                                                TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   URN
                                                                                                                                                                                    PIR;
PIR;
PIR;
PIR;
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 206 LAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTH 265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-FEB-1991 (Rel. 17, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
15-JUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST GROWTH FACTOR) (ALPHA-ENDOTHELIAL CELL GROWTH FACTOR).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -!- SUBUNIT: MONOMER.
-!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
THAN DOES BFGF.
                                                                                                      LAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKHWFVGLKKNGRSKLGPRTH 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                               20 LGNYKKPKLLYCSNGGYFLRILPDGTVDGTKDRSDQHIQLQLCAESIGEVYIKSTETGQF 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
MEDLINE; 91347925.
Schnurch H., Risau W.;
Schnurch Hi, Risau W.;
"Differentiating and mature neurons express the acidic fibroblast growth factor gene during chick neural development.";
Development 111:1143-1154(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFPGF.
PROSITS: PS00247; HBGF_RF: 1.
Growth factor: Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
Martin G.R., Han J.K.;
Submitted (JUL-1995) to the EMBL/GenBank/DDBJ databases.
7; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    155 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; S63263; AAB19629.1; -.
EMBL; U31863; AAA80310.1; -.
EMBL; S63261; AAD13942.1; -.
PIR; S02639; S02639.
HSSP; P05230; ZAXM.
PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESCIPTION OF THE STATE OF THE
```

^

```
RESULT 9

SDC4_MOUSE
AC 03598;
DT 15-FEB-2000
DT 15-FEB-2000
DE SYNDECAN-4 P
GN BDC4.
OS Musmalls; Eu
CC Eukaryota; M
CO Musmalls; D
CC CO T SOUCHION
CC -1- FUNCTION
CC -1- FUNCTION
CC -1- FUNCTION
CC -1- SIMILARI
CC -1- S
                            DOMAIN
CARBOHYD
CARBOHYD
        TRANSMEM
                                                                                                                                            Query Match
                                                                                     CARBOHYD
                                                                                                     SEQUENCE
                                                                                                                                                                   Best Loc
Matches
                                                                                                                                                                                                                                                                                                     61
          FT FT SO SET SO
                                                                                                                                                                                                                        임
                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                               79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Métazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Shworak N.W., Kojima T., Rosenberg R.D.;
"Isolation and characterization of ryudocan and syndecan heparan sulfate proteoglycens, core proteins, and cDNAs from a rat endothelial cell line.";
Haemostasis 23:161-176(1993).
-!- FUNCTION: CELL SURRACE PROTEOGLYCAN THAT BEAR HEPARAN SULFATE.
-!- SUBCELLULAR LOCATION: TYPE I MEMBRANE PROTEIN.
-!- SIMILARITY: BELONGS TO THE SYNDECAN FAMILY OF INTEGRAL MEMBRANE
                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Proteoglycan; Heparan sulfate; Transmembrane; Glycoprotein; Signal.
SIGNAL 1 23
                      HEPARIN-BINDING GROWTH FACTOR 1.
ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
HEPARIN (POTENTIAL).

8EDB70545E284365 CRC64;
                                                                                                                                                                                                                    LGNYKKPKLLYCSNGGHFLRILPDGKVDGTRDRSDQHIQLQLSAEDVGEVYIKSTASGQY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                [1] SEQUENCE FROM N.A. MEDILNE; 92165852.
Rojima T., Shworak N.W., Rosenberg R.D.; Molecular cloning and expression of two distinct cDNA-encoding heparan sulfate proteoglycan core proteins from a rat endothelial cell line."
                                                                                                                                                                                 ö
                                                                                                                                          Length 155;
                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EXTRACELLULAR (POTENTIAL)
                                                                                                                                        Score 917; DB 1; Ler
Pred. No. 1.90e-182;
7; Mismatches 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-FEB-1994 (Rel. 28, Created)
01-FEB-1994 (Rel. 28, Last sequence update)
15-FEB-2000 (Rel. 39, Last annotation update)
SYNDECAN-4 PRECURSOR (RYUDOCAN CORE PROTEIN).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   202 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               POTENTIAL.
SYNDECAN-4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     J. Biol. Chem. 267:4870-4877(1992)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PFAM; PF01034; Syndecan; 1.
PROSITE; PS00964; SYNDECAN; 1.
                                                                                                     MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; M81786; AAA73167.1; -.
                                                                                                                                        46.3%;
larity 89.7%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S61868; AAB26725.1; -.
155
155
155
28
116
17322 M
                                                                                                                                                                                                                                                                                                                                                                             140 YGQKAILFLPLPVSAD 155
                                                                                                                                                                                                                                                                                                                                                                                                   266 YGQKAILFLPLPVSSD 281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Rattus norvegicus (Rat).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 202
149
        1
16
22
24
113
155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PIR; A42410; A42410
                                                                                                                                                             Local Similarity
les 122; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A. MEDLINE; 93266143.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PROTEOGLYCANS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SDC4 OR SYND4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LT 8
SDC4_RAT
P34901;
                                                                                                     SEQUENCE
                                                                                                                                          Query Match
                                                               BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CHAIN
DOMAIN
                                                                                                                                                                                                                      20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL;
                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
        555558
                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    77777777777777777777777777777777
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its most by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@lsb-sib.ch).
                                                                                                                                                                                                             4
                                               (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              O-LINKED (GLYCOSAMINOGLYCAN) (POTENTIAL).
O-LINKED (GLYCOSAMINOGLYCAN) (POTENTIAL).
O-LINKED (GLYCOSAMINOGLYCAN) (POTENTIAL).
4246963EC6A25915 CRC64;
                                                                                                                                                                                                                                                                                                                                                                    D-FELSGSGDLDDTEEPRTFPEVISPLVPLDNHIPENAQPGIRVPSEPKELEENEVIPKR 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Saito H.;
                                                                                                                                                                                                                                                                            1 MAPARLFA-LLLFFVGG--VA--ESIRETEVIDPQDLLEGRYFSGALPDDEDVVGPGGES 55
                                                                                                                                                                                                                                                     1 MAPVCLFAPLLLLLLGGFPVAPGESIRETEVIDPQDLLEGRYFSGALPDDEDAGGLEQDS 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
MEDLINE; 97420681.
TSUZUKI S., KOJIMA T., KASSUMI A., YAMAZAKI T., SUGIUTA I., SAITO H.
MOLDICULAT CIDINING, 96ENOMIC ORGANIZATION, Promoter activity, and
LISSUE-specific expression of the mouse ryudocan gene.";
J. Blochem. 122:17-24(1997).
--- FUNCTION: CELL SUBFACE PROTEOCLYCAN THAT BEAR HEPARAN SULFATE.
--- FUNCTION: CELL SURFACE PROTEOCHY.
--- TISSUE SPECIFICITY: UBLOUITOUS.
--- SIMILARITY: BELONGS TO THE SYNDECAN FAMILY OF INTEGRAL MEMBRANE
                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sulfate; Transmembrane; Glycoprotein; Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi,
Mammalia, Eutheria, Rodentia, Sciurognathi, Muridae, Murinae, Mus.
                                                                                                                                                                                                             ;
                       CYTOPLASMIC (POTENTIAL).
O-LINKED (GLYCOSAMINOGLYCAN)
O-LINKED (GLYCOSAMINOGLYCAN)
O-LINKED (GLYCOSAMINOGLYCAN)
                                                                                                                                                              Length 202;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SYNDECAN-4.

EXTRACELLULAR (POTENTIAL).

POTENTIAL.

CYTOPLASMIC (POTENTIAL).
                                                                                                                 5D9C8B3BF4C0D58A CRC64;
                                                                                                                                                                                                             50;
20;
                                                                                                                                                           Score 679; DB 1; L
Pred. No. 1.00e-125;
14; Mismatches 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15-FEB-2000 (Rel. 39, Created)
15-FEB-2000 (Rel. 39, Last sequence update)
15-FEB-2000 (Rel. 39, Last annotation update)
SYNDECAN-4 PRECURSOR (RYUDOCAN CORE PROFIEN).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            198 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                             120 VPSDVGDDDVSNKVSMSSTSQGSNIFERTEV 150
    POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MGD; MGI:1349164; SDC4.
PFAM; PF01034; Syndecan; 1.
PROSITE; PS00964; SYNDECAN; 1.
                                                                                                                   MM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ¥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; D89571; BAA22135.1; -. EMBL; D89572; BAA22136.1; -.
                                                                                                                                                              34.38;
174
202
44
65
67
21962 N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   44
62
64
21482 N
                                                                                                                                                                                   Similarity 73.5%;
111; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         23
198
145
170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Proteoglycan; Heparan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      musculus (Mouse)
    150
175
44
65
67
202 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              44
62
64
198 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PROTEOGLYCANS.
                                                                                                                                                                     Local S.L...
111;
```

a

ŏ

ద

ò

δ

```
ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; L36136; AAA31519.1; -. PIR; S00185; S00185.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               155
48
90
31
119
17280 M
                                                                                                                                                                                 STANDARD;
                                                                                                           145 GOKAILFLPMSAKS 158
                                                                                                                                                                                                                                                                                                                                              Bovidae; Caprinae; Ovis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SUBUNIT: MONOMER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                        OF 9-155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                155
                                                                                                                                                                   LT 11
FGF2_SHEEP
P20003;
                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Growth
PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CHAIN
                               87
                                                            207
                                                                                                                       267
                                                                                                                                                                 g
                                                           ŏ
                                                                                       g
                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ij
                               7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE ILSSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -:- SUBUNIT: MONOMER.
-:-, MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                     56 DDFELSGSGDLDDLEDSMIGPEVVHPLVPLDNHIPERAGSGSQVPTEPKKLEENEVIPKR 115
                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                            26
                                                                                                                                                                                                                                                                                                 01-FEB-1996 (Rel. 33, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
                                Gaps
                                                           1 MAPACLLAPLLLLLGGFPLVPGESIRETEVIDPODLLEGRYFSGALPDDEDA-G-G--S
                                                                          DDFELSGSGDLDDTEEPRPFPEVIEPLVPLDNH1PENAQPGIRVPSEPKELEENEVIPKR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Borja A.Z., Zeller R., Meijers C.;
"Expression of alternatively spliced bFGF first coding exons and
antisense mRNAs during chicken embryogenesis.";
Dev. Biol. 157:110-118(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ;
                               Indels 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HEPARIN-BINDING GROWTH FACTOR 2. HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
7B69B684C17F1816 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 158;
Length 198;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
PROPEP 1 12 BY SIMILARITY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          36; Indels
 Score 642; DB 1; Ler
Pred. No. 5.16e-117;
16; Mismatches 14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 522; DB 1; I
Pred. No. 4.70e-89;
23; Mismatches 36;
                                                                                                                                                                                                                                                                         158 AA
                                                                                                                                                                                                117 -APSDVGDDMSNKVSMSSTAQGSNIFERTEV 146
                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17374 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; M95707; AAA48617.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              26.4%;
larity 54.5%;
Conservative
32.4%;
Ouery Match 32.4%;
Best Local Similarity 73.5%;
Matches 111; Conservative
                                                                                                                                                                                                                                                                         STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                            Gallus gallus (Chicken).
                                                                                                                                                                                                                                                                                                                                                             GROWTH FACTOR) (BFGF).
FGF2 OR FGF-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 158 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  P09038; 1BFF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
73; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                      [1]
SEQUENCE FROM N.A.
MEDLINE; 93246053.
                                                                                                                                                                                                                                                                      FGF2_CHICK
P48800;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                        Gallus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CHAIN
```

27 GHFKDPKRLYCKNGGFFLRINPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVSANRFL 86

유

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce.or send an email to license@liber.or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGENTS
IN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                       AMKEDGRLLALKCATEECFFFERLESNNYNTYRSRKYSD--WYVALKRTGQYKPGPKTGP 144
                                                                                                                                                                                                                                                                                                                                                          01-FEB-1996 (Rel. 33, Last Sequence update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
FGF2 OR FGF-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ovis aries (Sheep).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEBS Lett, 224:128-132(1987).

-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES: VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HEPARIN-BINDING GROWTH FACTOR 2. CELL ATTACHMENT SITE (POTENTIAL). CELL ATTACHMENT SITE (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE; 88055577.
Simpson R.J., Moritz R.L., Lloyd C.J., Fabri L.J., Nice E.C., Rubira M.R., Burgess A.W.;
"Primary structure of ovine pituitary basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 516; DB 1; Length 155;
Pred. No. 1.14e-87;
22; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HSSP, P09038; IBFF.
PFAM; PF00167; FGF; 1.
PRINTS; PR00262; HBGFFGF.
PRINTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGFFFF. 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
Sutton R., Ward W.G., Raphael K.A., Cam G.R.;
Submitted (SEP-1994) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B5F2364BA610606D CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HEPARIN (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (POTENTIAL)
                                                                                                                                                                                                                                                                                                                   Æ
                                                                                                                                                                                                                                                                                                                   155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HEPARIN
                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 26.1%;
Best Local Similarity 55.2%;
Matches 74; Conservative
```

```
TURN
HELIX
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TURN
    23-OCT-1986 (Rel. 02, Created)
23-OCT-1986 (Rel. 02, Last sequence update)
23-OT-1986 (Rel. 33, Last annotation update)
U1-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HaGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTATROPIN) [CONTAINS: KIDNEY-DERIVED GROWTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDINE: 87119165.
Ueno N., Baird A., Esch F., Shimasaki S., Ling N., Guillemin R.;
"Purification and partial characterization of a mitogenic factor from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE; 86016731.

ESCH F., Baird A., Ling N., Ueno N., Hill F., Denoroy L., Klepper R., Gospodarowicz D., Boehlen P., Guillemin R.;

"Primary structure of bovine pituitary basic fibroblast growth factor (FGF) and comparison with the amino-terminal sequence of bovine brain
                                                                                         AMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGPKTGP 141
                                                                                                                 growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gospodarowicz D.; of an endothelial cell growth with basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
MEDLINE: 87271066.
Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.;
Alman basic fibroblast growth factor: nucleotide sequence, genomic organization, and expression in mammalian cells.;
cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bos taurus (Bovine).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoldea;
24 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKJQLQAEERGVVSIKGVCANRYL
                         MEDLINE; 86295737.
Ueno N., Baird A., Esch F., Ling N., Guillemin R.;
"Isolation of an amino terminal extended form of basic fibroblast
growth factor.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Abraham J.A., Mergia A., Whang J.L., Tumolo A., Friedman J., Hjerrild K.A., Gospodarowicz D., Fiddes J.C.; "Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fibroblast growth factor.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             iochem. Biophys. Res. Commun. 138:580-588(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Proc. Natl. Acad. Sci. U.S.A. 82:6507-6511(1985)
                                                                                                                                                                                                                                                                                                                       155 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Baird A., Esch F., Boehlen P., Ling N., "Isolation and partial characterization effector from the bovine kidney: homology factor."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Regul. Pept. 12:201-213(1985)
                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                                                                                                                                                                           11111111: 1
267 GQKAILFLPLPVSS 280
                                                                                                                                                                                 142 GOKAILFLPMSAKS 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bovidae; Bovinae; Bos
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE OF 10-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TISSUE-KIDNEY;
MEDLINE; 86095426.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE OF 25-41.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE OF 21-40.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE; 86261806.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE OF 1-9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OR FGF-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         scidic FGF.
                                                                                                                                                                                                                                                                                                                     FGF2_BOVIN
                                                                                       84
                                                                                       g
                                                                                                                                                                              용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REPRESENTED BY THE STATE OF THE
                                            ò
                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no "estrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                          factors.";
Science 251:90-93(1991).
Science 251:90-93(1991).
ISCIENCE 251:90-93(1991).
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND VITRO. THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                              -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                              MEDLINE; 91095983.
Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
Hsu B.T., Rees D.C.;
"Three-dimensional structures of acidic and basic fibroblast growth
bovine liver: structural homology with basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KIDNEY-DERIVED GROWTH FACTOR.
CELL ATTACHMENT SITE (POTENTIAL).
CELL ATTACHMENT SITE (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HEPARIN-BINDING GROWTH FACTOR 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PROSITE; PS00247; HBGF_RGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HEPARIN (POTENTIAL). HEPARIN (POTENTIAL).
                                                               X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
                                Regul. Pept. 16:135-145(1986)
                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; M13440; AAA30518.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRINTS; PR00262; IL1HBGF.
PRINTS; PR00263; HBGFFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PIR; A24663; GKBOB.
PIR; A24819; A24819.
PIR; A32878; A32878.
PDB; 1BAS; 31-OCT.
PFAM; PFOO167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3D-structure.
PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CHAIN
SITE
SITE
BINDING
BINDING
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TURN
STRAND
TURN
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TURN
HELIX
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TURN
STRAND
HELIX
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TURN
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAND
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAND
```

10

g

셤 à 셤 ö ద ò

```
154
30
118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 267 GOKAILFLPLPVSS 280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             141 GOKAILFLPMSAKS 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mus musculus (Mouse).
                                                                                                                                                                                                                                                                                                                                                                                      Local Similarity
hes 73; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A. MEDLINE; 90201563.
                                                                                                                                                                                                                                                                                                  10
26
115
                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                  BINDING
                                                                                                                                                                                                                                                                                                                                BINDING
                                                                                                                                                                                                                                                                                        PROPEP
                                                                                                                                                                                                                                                                                                  CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                     Matches
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE; 89061721.
Shimasaki S., Emoto N., Koba A., Mercado M., Shibata F.,
Cooksey K., Baird A., Ling N.;
Complementary DNA cloning and sequencing of rat ovarian basic
fibroblast growth factor and tissue distribution study of its mRNA.";
Biochem. Biophys. Res. Commun. 157:256-263(1988).
                                                                                                                                                         207 AMDIDGLIYGSQIPNEECLFILERLEENHYNIYISKKHAEKNWEVGLKKNGSCKRGPRIHY 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -!- TISSUE SPECIFICITY: FOUND IN ALL THE TISSUES EXAMINED.
-!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                  84 AMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGPKTGP 141
                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
                                                                                                                                                                                                                                                                                                            01-JAN-1990 (Rel. 13, Created)
01-JAN-1990 (Rel. 13, Last sequence update)
15-JUL-1998 (Rel. 35, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (PROSTATROPIN)
                                                                                  24 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL 83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kurokawa T., Seno M., Igarashi K.;
"Nucleotide sequence of rat basic fibroblast growth factor cDNA.";
Nucleic Acids Res. 16:5201-5201(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pasumarthi K.B.S., Jin Y., Cattini P.A.; "Loning of the rat fibroblast growth factor-2 promoter region and its response to mitogenic stimuli in glioma C6 cells."; J. Neurochem. 68:898-898(1997).
                                                        .;
;;
                             Length 155;
                                                      Indels
155 AA; 17250 MW; BE6CE70FA6107129 CRC64;
                         Score 516; DB 1; Ler
Pred. No. 1.14e-87;
22; Mismatches 36;
                                                                                                                                                                                                                                                                                     154 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       [3]
SEQUENCE OF 1-28 FROM N.A.
STRAIN-SPRAGUE-DAWLEY; TISSUE-TESTIS;
MEDLINE; 97200905.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE OF 35-154 FROM N.A. STRAIN-SPRAGUE-DAWLEY; TISSUE-BRAIN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAIN=SPRAGUE-DAWLEY; TISSUE=OVARY;
                                                                                                                                                                                                                                                                                      PRT;
                          Query Match 26.1%;
Best Local Similarity 55.2%;
Matches 74; Conservative
                                                                                                                                                                                                                                                                                     STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                   Rattus norvegicus (Rat).
                                                                                                                                                                                               142 GOKAILFLPMSAKS 155
                                                                                                                                                                                                                 Kurokawa T., Seno M.,
"Nucleotide sequence o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SUBUNIT: MONOMER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE; 88262516.
                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                      FGF2 OR FGF-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     rissue-brain
                                                                                                                                                                                                                                                                     LT 13
FGF2_RAT
P13109;
SEQUENCE
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hebert J.M., Basilico C., Goldfarb M., Haub O., Martin G.R.;
"Isolation of cDNAs encoding four mouse FGF family members and
characterization of their expression patterns during embryogenesis.";
Dev. Biol. 138:454-463(1990).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIGGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SUBUNIT: MONOMER.
MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             83 AMKEDGRLLASKCVTEECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGSKTGP 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FGF2_MOUSE STANDARD; PRT; 154 AA.
P15655;
01-APR-1990 (Rel. 14, Last sequence update)
01-FB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       23 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYL 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HEPARIN-BINDING GROWTH FACTOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HSSP; P09036; IBFF.

PFAM; PF00167; FGF; 1.

PRINTS; PR00262; ILLHBGF.

PRINTS; PR00263; HBGFFGF.

PROSTIE; PS00247; HBGFFGF.

Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               115 118 HEPARIN (POTENTIAL).
154 AA; 17139 MW; 1A0F14FF423D8403 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HEPARIN (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 508; DB 1; Pred. No. 7.91e-86;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        23; Mismatches
                                                                                                                                                                                                                                                                           EMBL; M22427; AAA41210.1; --
EMBL; X07285; CAA30265.1; --
EMBL; U78079; AAC53225.1; --
EMBL; X61697; CAA43863.1; --
PIR; S00876; S00876.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25.7%;
ilarity 54.5%;
Conservative
```

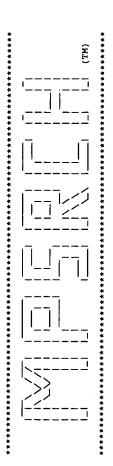
```
SEQUENCE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 factors.";
             SEQUENCE
                                                                                                                                                                                MEDLINE;
                                                                                                                       Caput D.;
                                                                                                                                                                                                                                                                                                                                                                                                                            factor
    the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                              AMKEDGRLLASKCVTEECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGSKTGP 140
                                                                                                                                                                                                                                                                                                     01-NOV-1988 (Rel. 09, Last sequence update)
01-NOV-1997 (Rel. 35, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTAIROPIN)
                                                                                                                                                                                                                                                   23 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYL 82
                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.; "Human basic fibroblast growth factor: nuclectide sequence, genomic organization, and expression in mammalian cells."; cold Spring Harb. Symp. Quant. Blol. 51:657-668(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "A form of human basic fibroblast growth factor with an extended amino terminus.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
MEDLINE; 87213338.
Sommer A., Brewer M.T., Thompson R.C., Moscatelli D., Presta M.,
Riffin D.B.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
-MEDLINE; 87053817.
Abraham J.A., Whang J.L., Tumolo A., Mergia A., Friedman J.,
Gospodarowicz D., Fiddes J.C.;
"Human basic fibroblast growth factor: nucleotide sequence and
                                                                                                                                                            ď
                                                                                                                                                           HEPARIN-BINDING GROWTH FACTOR HEPARIN (POTENTIAL)
HEPARIN (POTENTIAL)
                                                                                                                                                                                                            Length 154;
                                                                                                                          PROSITE; PS00247; HBGF_FGF; 1.
Growth factor: Mitogen; Vascularization; Heparin-binding.
PROPEP
                                                                                                                                                                                          689F677416274388 CRC64;
                                                                                                                                                                                                                                36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Biochem. Biophys. Res. Commun. 144:543-550(1987)
                                                                                                                                                                                                           Score 508; DB 1; I
Pred. No. 7.91e-86;
                                                                                                                                                                                                                                23; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                             155 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                Created)
                                                                                                                                                                                          17153 MW;
                                                                                                                                                                                                           25.7%;
larity 54.5%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  genomic organization.";
EMBO J. 5:2523-2528(1986).
                                                          EMBL; M30644; AAA37621.1;
PIR; C37360; C37360.
                                                                                                                                                                                                                                                                                                                                                                           PFAM; PF00167; FGF; 1.
PRINTS; PR00262; ILIHBGF.
PRINTS; PR00263; HBGFFGF.
                                                                                                                                                                                                                                                                                                                                 GQKAILFLPMSAKS 154
                                                                                                                                                                                                                                                                                                                                             HSSP; P09038; 1BFF.
MGD; MGI:95516; FGF2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens (Human).
                                                                                                                                                                     26
115 1
154 AA;
                                                                                                                                                                                                                      Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A. MEDLINE; 87217066.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FGF2 OR FGFB
                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                            Query Match
                                                                                                                                                                      BINDING
                                                                                                                                                                             BINDING
                                                                                                                                                           CHAIN
                                                                                                                                                                                                                        Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                 141
                                                                                                                                                                                                                                                                                                                                                    267
                                                                                                                                                                                                                                                                                          83
                                                                                                                                                                                                                                                                                                                                                                                 RESULT
ID FG
AC PG
DT 011
DT 011
DE HE
CG FG
  음
                                                                                                                                                                                                                                                                                         윱
                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                  윱
                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
```

```
Story M.T., Esch F., Shimasaki S., Sasse J., Jacobs S.C., Lawson R.K.; "Amino-terminal sequence of a large form of basic fibroblast growth factor isolated from human benign prostati: hyperplastic tissue."; Biochem. Blophys. Res. Commun. 142:702-705(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Zhang J., Cousens L.S., Barr P.J., Sprang S.R.;
"Three-dimensional structure of human basic fibroblast growth factor,
a structural homolog of interleukin 1 beta.";
Proc. Natl. Acad. Sci. U.S.A. 88:3446-3451(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eriksson A.E., Cousens L.S., Matthews B.W.;
"Refinement of the structure of human basic fibroblast growth factor and are 1.6-A resolution and analysis of presumed heparin biniing sites by selenate substitution.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE; 91095583.
Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
Hsu B.T., Rees D.C.;
"Three-dimensional structures of acidic and basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                             "High molecular mass forms of basic fibroblast growth factor are initiated by alternative CUG codons.";
Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                factors:
                                                       Kurokawa T., Sasada R., Iwane M., Igarashi K.;
"Cloning and expression of cDNA encoding human basic fibroblast
growth factor.";
FEBS Lett. 213:189-194(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.;
"Human brain-derived actidic and basic fibroblast growth factor
amino terminal sequences and specific mitc:enic activities.";
Biochem. Blophys. Res. Commun. 135:541-54£(1986)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eriksson A.E., Cousens L.S., Weaver L.H., Matthews B.W.; "Three-dimensional structure of human basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).
MEDLINE; 9121151.
AGO H., Kitagawa Y., Fujishima A., Matsuura Y., Katsube Y.;
"Crystal structure of basic fibroblast growth factor at 1.6-A
                                                                                                                                                                                                                                                                               MEDLINE; 89184522.
Prats H., Kaghad M., Prats A.C., Klagsbrun M., Lelias J.M.,
Liauzun P., Chalon P., Tauber J.P., Amalric F., Smith J.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Proc. Natl. Acad. Sci. U.S.A. 88:3441-3445(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS). MEDLINE; 94004464.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     K-RAY CRYSTALLOGRAPHY (1.8 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             K-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Protein Sci. 2:1274-1284(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Biochem. 110:360-363(1991).
FROM N.A.
87162468.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                86275260
                                                                                                                                                                                                                                                  SEQUENCE FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE OF 10-39
MEDLINE; 86186784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE; 87156686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE; 91195368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE OF 10-35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE; 91195367
```

```
STRAND
SEQUENCE
                                                                                                                                                                                                                                                                                                                       Query Match
                                                      STRAND
                                                                                           STRAND
                                                                                                                                STRAND
                                                                                                                                                                                       STRAND
                     STRAND
                                                                                                                                                                                                                                               HELIX
                                        HELIX
                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                       TURN
 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                 This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the Buropaen Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                              spectroscopy.";
Blochemistry 35:13552-13561(1996).
Blochemistry 35:13552-13561(1996).
I SICOLOR: THE HEPRRIN-BINDING GROWTH FACTORS ARE ANGIGGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                   STRUCTURE BY NMR.
MEDLINE; 97040521.
MAY F.J., Seddon A.P., Boehlen P., Powers R.;
Milgh-resolution solution structure of basic fibroblast growth factor determined by multidimensional heteronuclear magnetic resonance
                                                                                                                                                                                                                                           SUBUNIT: MONOMER.
MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                  SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HEPARIN-BINDING GROWTH FACTOR 2. CELL ATTACHMENT SITE (POTENTIAL) CELL ATTACHMENT SITE (POTENTIAL) HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Vascularization; Heparin-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; M17599; AAA52534.1; ALT_INIT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAA52533.1; ALT_INIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRINTS, PRO0262, ILLHBGF.
PRINTS; PRO0263; HBGFFGF.
PROSTIF, PS00247; HBGF_FGF;
GTOWTH factor; Mitogen; Vasc
3D-structure.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; X04433; CAA28029.1;
EMBL; M27968; AAA52448.1;
EMBL; J04513; AAA52533.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CAA28028.1;
Science 251:90-93(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PF00167; FGF; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  08-NOV-96.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  31-JAN-94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2FGF; 15-APR-9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             03-APR-96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; X04432;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAND
TURN
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAND
TURN
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HELIX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  rurn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A NAMES OF STREET AND STREET AND
```

```
ij
                                                                                                                                                                    84 AMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKY" -- SWYVALKRTGQYKLGSKTGP 141
                                                                                                                                                                                                                          24 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKIGLQAEERGVVSIKGVCANRYL 83
                                                                                                                            Gaps
                                                                                                                            .;
?
                                                                                                Length 155;
                                                                                              Score 509; DB 1; Length 155
Pred. No. 4.66e-86;
23; Mismatches 36; Indels
                                                                     17254 MW; BE6CE13373007129 CRC64;
                                                                                               25.7%;
llarity 54.5%;
Conservative
                                                                                                                                                                                                                                                                                    142 GOKAILFLPMSAKS 155
133
                                                       148
155 AA;
                                                                                                         Local Similarity
nes 73; Conser
```

Search completed: Tue Aug 29 16:01:25 2000 Job time: 28 secs.



Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

Tue Aug 29 16:01:42 2000; MasPar time 23.63 Seconds 824.524 Million cell updates/sec on:

MPsrch\_pp protein - protein database search, using Smith-Waterman algorithm

Tabular output not generated.

Title: Description: Perfect Score: Sequence:

PAM 150 Gap 11 Scoring table:

225878 seqs, 69334122 residues Searched:

Minimum Match 0% Listing first 45 summaries Post-processing:

1:sp\_archea 2:sp\_bacteria 3:sp\_fungi 4:sp\_human 5:sp\_invertebrate 6:sp\_nammal 7:sp\_mhc 8:sp\_organelle 5:sp\_hage 10:sp\_plant 11:sp\_rodent 12:sp\_unclassified 13:sp\_vertebrate 14:sp\_vinus sptremb112 Database:

Mean 46.003; Variance 77.721; scale 0.592 Statistics: Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

)		фP					
Result No.	Score	Query	Length	DB	Ω	Description	Pred. No.
-	642	32.4	198	11	035988	RYUDOCAN CORE PROTEIN	1.22e-119
7	511	25.8	130	9	077767	BASIC FIBROBLAST GROWT	1.48e-88
e	509	25.7	196	4	P78443	21 KD BASIC FIBROBLAST	4.36e-88
	382	19.3	101	13	P79706	BASIC FGF (FRAGMENT).	1.07e-58
S	346	17.5	146	13	007659	FIBROBLAST GROWTH FACT	1.45e-50
9	313	15.8	115	1	060487	BASIC FIBROBLAST GROWT	3.24e-43
7	313	15.8	194	ø	P79150	KERATINOCYTE GROWTH FA	3.24e-43
8	289	14.6	212	13	042407	FIBROBLAST GROWTH FACT	5.986-38
σ	274	13.8	252	Ξ	960680	FHF-4B.	1.07e-34
10	265	13.4	9	4	016588	ACIDIC FIBROBLAST GROW	9.24e-33
11	265	13.4	70	11	054837	FIBROBLAST GROWTH FACT	9.24e-33
12	264	13.3	59	4	Q16089	ACIDIC FIBROBLAST GROW	1.51e-32
13	260	13.1	196	13	Q9YH31	PUTATIVE FIBROBLAST GR	1.09e-31
14	257	13.0	243	13	Q9W6A1	FIBROBLAST GROWTH FACT	4.74e-31
15	251	12.7	127	4	099517		8.94e-30
16	250	12.6	206	13	Q9YGD8	FIBROBLAST GROWTH FACT	1.46e-29
17	248	12.5	192	4	095830	FIBROBLAST GROWTH FACT	3.86e-29
18	248	12.5	245	13	09W6A2	FIBROBLAST GROWTH FACT	3.86e-29
19	236	11.9	200	13	P79925	FIBROBLAST GROWTH FACT	1.29e-26
20	225	11.4	74	9	077561	KERATINOCYTE GROWTH FA	2.51e-24

;

1.56e-24	6.50e-24	1.05e-23	1.12e-22	7.35e-22	4.79e-21	1.22e-20	4.99e-19	7.92e-19	1.21e-16	7.36e-16	1.81e-15	1.81e-15	6.73e-11	2.14e-04	9.58e-04	4.16e-03	1.75e-02	3.54e-02	3.54e-02	5.02e-02	1.41e-01	1.41e-01	1.00e-01	1.99e-01
		FIBROBLAST GROWTH FACT	FGF HOMOLOG.	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	R33683_2.	FIBROBLAST GROWTH FACT	FGF=ACMNPV ORF32.	FGF-19.	FIBROBLAST GROWTH FACT	BASIC FIBROBLAST GROWT	BASIC FIBROBLAST GROWT	FIBROBLAST GROWTH FACT	CYTOCHROME.	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	NUCLEOSOME ASSEMBLY PR	SENSORY HISTIDINE KINA	W06A7.3A PROTEIN.	DENSE GRANULE PROTEIN	PUTATIVE LIPOPROTEIN.	HYPOTHETICAL 27.5 KD P	A332 ANTIGEN (FRAGMENT	CONSERVED PROTEIN.
076831	03060	057341	P91672	014915	042278	060371	Q9YMH2	092401	095750	097573	016443	000527	035340	007819	062682	P79685	088701	O9ZEP3	023187	076215	069564	073554	025751	027154
υį	<u>~</u> ;	13	ഗ	4	13	4	14	14	4	ဖ	4	4	1	7	Ø	13	11	~	ស	ស	~	14	S	Н
425	707	210	770	244	210	129	282	182	216	73	114	114	78	384	82	86	375	507	2607	193	239	243	837	822
11.4	11.3	11.2	11.0	10.8	10.6	10.5	10.1	10.0	9.4	9.5	9.1	9.1	7.9	6.1	5.9	5.7	5.5	5.4.	5.4	5.3	5.2	5.2	5.2	5.1
226	223	222	217	213	209	207	199	198	187	183	181	181	157	120	116	112	108	106	106	105	102	102	103	101
21	77	23	24	25	56	27	28	29	30	31	32	33	34	32	36	37	38	39	40	41	42	43	44	45

## ALIGNMENTS

ij

2; .. Gaps

nlt 2 077767 077767;

ò

```
125 AMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYT -- SWYVALKRTGQYKLGSKTGP 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           65 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 PKRLYCKNGGFFLRINSDGKVDGAREKSDSYIKLQLQAEERGVVSIKGVCANRYLAMKDD 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SUZUKI A.S., TABATA T., SAKAGUCHI K., TAKABATAKE T., TAKESHIMA K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "Serial expression of the genes in a mesodermalizing ectoderms of early Cynops gastrula.";
early Cynops gastrula.";
Submitted (NOV-1996) to the EMBL/GenBank/DDBJ databases.
EMBL; D89443; BAA13958.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASIC FGF (FRAGMENT).
Cynops pyrrhogaster (Japanese common newt).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Amphibia;
Batrachia; Caudata; Salamandroidea; Salamandridae; Cynops.
                                                                                                                                                                                                                                                                    Score 509; DB 4; Length 196; Pred. No. 4.36e-88;
                                                                                                                                                                                                                                                                                                                                 23; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             212 GLLYGSOTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKK 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61 GRLMALKWITDECFFFERLESNNYNTYRSRKYSD--WYVALKR 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           18; Mismatches 28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pred. No. 1.07e-58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 13;
EMBL; J04513; AAA52532.1; -.
EMBL; S47380; AAD13853.1; -.
HSSP: P09038; 1BFF.
HSCSITE; PS00247; HBCF_FGF; 1.
PFAM; PF00167; FGF; 1.
PRINTS; PR00262; ILIHBGF.
SEQUENCE 196 AA; 21203 MM; 49B75E39 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           101 AA; 11907 MW; 1CD93BB0 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        146 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     101 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 382;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PF00167; FGF; 1.
PR00167; FGF; 1.
2R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ULT 5

Q07659 PRELIMINARY;

Q070559 OTEMBLE 01, C;

Q1-NOV-1996 (TREMBLE 01, L;

Q1-NOV-1999 (TREMBLE 01, L;

FIBNOBLAST GROWTH FACTOR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-MAY-1997 (TrEMBLrel. 03, 01-MAY-1997 (TrEMBLrel. 03, 01-NOV-1999 (TrEMBLrel. 12,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      19.3%;
                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity 54.5%;
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity 53.4%;
Matches 55; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    183 GOKAILFLPMSAKS 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TISSUE-EMBRYO;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KANEDA T.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT

D P79706,

D P79706,

D 01-MAY-19706,

D 01-MAY-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PROSITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEEEES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRATS H., KAGHAD M., PRATS A.C., KLAGSBRUN M., LELIAS J.M.,
LIADTUN P., CHALON P., TAUBER J.P., AMALRIC F., SMITH J.A., CAPUT D.;
"High molecular mass forms of basic fibroblast growth factor are
initiated by alternative CUG codons.";
Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61 KEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGPKTGPGQ 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 FKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAREFGVVSIKGVCANRYLAM 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Reverse transcription with nested polymerase chain reaction shows expression of basic fibroblast growth factor transcripts in human granulosa and cumulus cells from in vitro fertilisation patients."; Biochem. Biophys. Res. Commun. 187:1227-1231(1992).
                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Carnivora; Fissipedia; Canidae; Canis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE; 93038590.
WATSON R., ANTHONY F., PICKETT M., LAMBDEN P., MASSON G.M., THOMAS E.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 130;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
TISSUE-ADRENAL GLAND;
TROCHTA O.A., JACOSB R.M., LAMARRE J.;
"The role bref in canine Hemanglosarcoma.";
Submitted (APR-1998) to the EMBL/GenBank/DDBJ databases.
EMBL; AFOGO562; AAC35912.1; -.
EMBL; AFOGO562; AAC35912.1; -.
BSP; PO9038; IBFF.
PPROSITE; PS00247; HBGF_FGF; 1.
PPROSITE; PS001247; HBGF_FGF; 1.
NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          P78443 PRELIMINARY; PRT; 196 AA. P78443; P7847199; (TERBLIEL 0.3, Last sequence update) 01-NOV-1999 (TERBLIEL 1.2, Last annotation update) 21 KD BASIC FIBROBLAST GROWTH FACTOR (BFGF).
                                                                                                                                                                                                                  01-NOV-1998 (TrEMBLrel. 08, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 511; DB 6;
Pred. No. 1.48e-88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      130 AA; 14902 MW; DB6A90A4 CRC32;
                                                                                                                           130 AA
      116 ISPVEESEDVSNKVSMSSTVQGSNIFERTEV 146
                                                                                                                                                                                      Created)
                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE OF 81-168 FROM N.A.
                                                                                                                                                                                (TrEMBLrel. 08,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ouery Match 25.8%;
Best Local Similarity 55.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               73; Conservative
                                                                                                                           PRELIMINARY;
                                                                                                                                                                                01-NOV-1998 (TrEMBLrel. 01-NOV-1998 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                 Canis familiaris (Dog).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           119 KAILFLPMSAKS 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      269 KAILFLPLPVSS 280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A. MEDLINE; 89184522.
```

NON\_TER SEQUENCE

Matches

셤

g ò

δ

RESULT

DDE COOCOSON SERVICE S

8

ò

NON\_TER

ij

;

Indels

Length 101;

8 8 8

셤

g

ò

ò

```
CANATAN H., CHANG W.Y., SUGIMOTO Y., SHIDAIFAT F., KULP S.K.,
BRUEGGEMETER R.W., LIN Y.C.;
"Keratinocyte growth factor (KGF/FGF-7) has a paracrine role in canine
prostate: molecular cloning of mRNA encoding canine KGF.";
DNA Cell Biol. 15:247-254(1996).
EMBL: 9080800; AAB38972.1;
FRSS: P05230; 2AFG.
PROSITE: P500247; HBGF_FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FIBROBLAST GROWTH FACTOR 10.
Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Archosauria; Aves;
Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          182 HIQLQLSAESVGEVYIKSTETGQYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYIS- 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OHICH H., NAKAGAWA T., YAMAMOTO A., ARAGA A., OHTA T., ISHIMAYU Y., YOSHIOKA H., KUWANA T., NOHNO T., YAMASAKI M., ITOH N., NOJI S.; "The mesenchymal factor, FGF10, initiates and maintains the ou.growth of the chick limb bud through interaction with FGF8, an apical ectodermal factor."; Development 124:2235-2244(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      82 RKRKL-Y-SYNKYFLKIEKNGKVSGTKKENCPFSILEITSVEIGVVAVKSIKSNYYLAMN 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              95 YNIMEIRTVAVGIVAIKGVESEYYLAMNKEGKLYAKKECNEDCNFKELILENHYNTYASA 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      37 PEQMATNVNCSSPERHTRSYDYMEGGDIRVRRL-FCRTQ-WYLRIDKRGKVKGTQEMKNS 94
                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Carnivora; Fissipedia; Canidae; Canis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 194;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              42; Mismatches 60; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 289; DB 13; Length 23.
Pred. No. 5.98e-38;
26; Mismatches 51; Indels
                                                                                                                   01-MAY-1997 (TrEMBLrel. 03, Created)
01-MAY-1997 (TrEMBLrel. 03, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
KERATINOCYTE GROWTH FACTOR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         155 KWTHSGGEMFVALNQKGVPVRGKKTKKEQKTAHFLPMAIT 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 313; DB 6; I
Pred. No. 3.24e-43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      194 AA; 22476 MW; 2B71A8ED CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRINTS; PRO0263; HBGFFGF.
SEOUENCE 212 AA; 23631 MW; C8AB1883 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A
                                               194 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-JAN-1998 (TIEMBLIEL: 05, Created)
01-JUN-1998 (TIEMBLIEL: 06, Last sequ
01-NOV-1999 (TIEMBLIEL: 12, Last anno
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14.6%;
Local Similarity 39.1%;
hes 52; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local Similarity 33.8%;
Matches 54; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; D86333; BAA24945.1;
HSSP; P03968; 1BAR.
PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PEAM; PE00167; FGF; 1.
PRINTS; PR00262; IL1HBGF.
PRINTS; PR00263; HBGFFGF.
                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRELIMINARY;
                                                                                                                                                                                                                                                                           Canis familiaris (Dog)
                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A. MEDLINE; 97330690.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE; 96226403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LT 8
042407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 042407;
                                           P79150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
                                                       SO DRANGE REPORTED TO THE PROPERTY OF THE PROP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DDT THE REAL OCCUPANTS OF THE PROPERTY OCCUPANTS OCCUPAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ï
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE; 90382254.
MITRANI E., GRUENBAUM Y., SHOHAT H., ZIV T.;
"Fibroblast growth factor during mesoderm induction in the early chick
Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Archosauria; Aves;
Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          45 ERVSAMVKLQLQAEERGVVSIKGVSANRFLAMKEDGRLLALKCATEECFFFERLESNNYN 104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 GFFLRIHPDGRVDGVREKTDPHIKHNFKPKA-EELCYQGSLSNRYLAMKEDGRLLASKCV 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                               BORJA A.Z., ZELLER R., MEIJERS C.;
"Expression of alternatively spliced bFGF first coding exons and antisense mRNAs during chicken embryogenesis.";
Dev. Biol. 157:110-118(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
Cavia porcellus (Guinea pig).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 313; DB 11; Length 115;
Pred. No. 3.24e-43;
22; Mismatches 31; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 146;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 346; DB 13; Length 14
Pred. No. 1.45e-50;
20; Mismatches 32; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KICLIANDELLI C.;
SUBmitted (JAN-1996) to the EMBL/GenBank/DDBJ databases.
EMBL: L75974, AAA85394.1; -.
HSSP; P09038; 2BFH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      105 TYRSRKYSD--WYVALKRTGQYRPGPKTGPGQKAILFLPMSAKS 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              221 NEECLFLEERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRG 261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLG 98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              146 AA; 16182 MW; 44C5274B CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NON_TER 1 SEQUENCE 115 AA; 13495 MW; 4B12914A CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; M95706; AAA48616.1; -...
EMBL; X56804; CAA40139.1; -...
HSSP; P09038; 2BFH.
PROSITE; PS00247; HBGF_FGF; 1.
PFAM; PF00167; FGF; 1.
PRINTS; PR00262; IL1HBGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Development 109:387-393(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PROSITE; PS00247; HBGF_FGF; 1.
PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ouery Match 17.5%;
Best Local Similarity 48.1%;
Matches 50; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity 44.6%;
Matches 45; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE OF 52-85 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRELIMINARY;
                                                                                                                                                                                                   MEDLINE; 93246053.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TISSUE-PROSTATE;
RICCIARDELLI C.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
```

060487; T 6

RESULT ID Q6 AC Q6 DT 011 DT 011 DE B7

4;

Gaps

4

4

9

셤

ò

ö

Gaps

÷0 ·

Length 60;

RESULT ID 08 AC 08 DT 01 DT 01 DE FH

유

g ò

```
MEDLINE; 94069734.
ZHAO X.M., YEOH T.K., HIEBERT M., FRIST W.H., MILLER G.G.;
"The expression of acidic fibroblast growth factor (heparin-binding growth factor-1) and cytokine genes in human cardiac allografts and
                                                                                                           TURCK E.J. AND TO THE TOTAL TO
                                                                           LI Y.L., KHA H., GOLDEN J.A., MIGCHIELSEN A.A.J., GOETZL E.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Craniata; Vertebrata; Mammalia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ZHANG Y.-X., HACKSHAW K.V.;
Submitted (JUL-1997) to the EMBL/GenBank/DDBJ databases
EMBL; AF012926; AAB94020.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eutheria; Rodentia; Sciurognathi; Muridae; Murinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 265; DB 4; Le
Pred. No. 9.24e-33;
2; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 265; DB 11; I
Pred. No. 9.24e-33;
2; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHTD 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      34 LGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQH 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           70 AA; 7677 MW; 15A1BE5E CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           70 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  59 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACIDIC FIBROBLAST GROWTH FACTOR (FRAGMENT)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FIBROBLAST GROWTH FACTOR-1 (FRAGMENT)
Mus musculus (Mouse).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Transplantation 56:1177-1182(1993).
EMBL: S67294; AAB29059.1; --
HSSP: P05230; 2AXM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens (Human).
Eukaryota; Metazoa; Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
STRAIN-C3H/HEN; TISSUE-LIVER;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-JUN-1998 (TrEMBLrel. 06, 01-JUN-1998 (TrEMBLrel. 06, 01-NOV-1999 (TrEMBLrel. 12,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity 94.6%;
les 35; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity 92.1%;
Matches 35; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    13.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           13.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PFAM; PF00167; FGF;
NON TER 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eutheria; Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
         SEQUENCE FROM N.A
                                              92202857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NON_TER
SEQUENCE
                                          MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21 12
Q16089
Q16089;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JT 11
054837
054837;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT OF THE SULT OF THE SULT
         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ID DE PER LA PERPER LA PER LA PER LA PER LA PERPER LA PER 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'n
80 LYCRQG-YYLQMHPDGALDGTKDDSTNSTLFNLIPVGLRVVAIQGVKTGLYIAMNGEGYL 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          139 YPSELFTPECKFKESVFENYYVIYSSMLYRQQESGRAWFLGLNKEGQVMKGNRVKKTKPA 198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             140 KKGKVYGSKEFNSDCKLKERIEENGYNTYASLNWKHNGRQMFVALNGRGATKRGQKTRRK 199
                                                                                                                                                                                       TISSUE-BRAIN;
MEDILUE; 98267141.
MEDILUE; 98267141.
YAMAMOTO S., MIRAMI T., OHBAYASHI N., OHTA M., ITOH N.;
Structure and expression of a novel isoform of mouse FGF homologous factor (FHF)-4.";
Blochim. Blochys. Acta 1398:38-41(1998).
EMBL; AB008908; BAA31544.1;
EMBL; AB008907; BAA31543.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE; 94069734.
ZHAO X.M., YEOH T.K., HIEBERT M., FRIST W.H., MILLER G.G.;
The expression of acidic fibrobiast growth factor (heparin-binding growth factor-1) and cytokine genes in human cardiac allografts and cells.";
Transplantation 56:1177-1182(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mammalia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          13.8%; Score 274; DB 11; Length 252; arity 37.5%; Pred. No. 1.07e-34; Conservative 26; Mismatches 49; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Rattus norvegicus (Rat), and Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-NOV-1998 (TrEMBLrel. 08, Created)
01-NOV-1998 (TrEMBLrel. 08, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PFAM; PF00167; FGF; 1. SEQUENCE 252 AA; 28364 MW; 1DFD5B4B CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        252 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACIDIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PROSITE; PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRELIMINARY;
                                                                                                                                                                                                                                                                                                                 200 NTSAHFLPMVVMS 212
                                                                                                                                                                                                                                                                                                                                                                                                     268 OKAILFLPLPVSS 280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      P03968; 1BAR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity
Matches 48; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       199 AHFLPKPL 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            271 ILFLPLPV 278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         016588;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         T 10
Q16588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  л.
089096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           089096;
```

Mammalia

ö

Gaps

ö

Indels

RESULT

á

ឧ

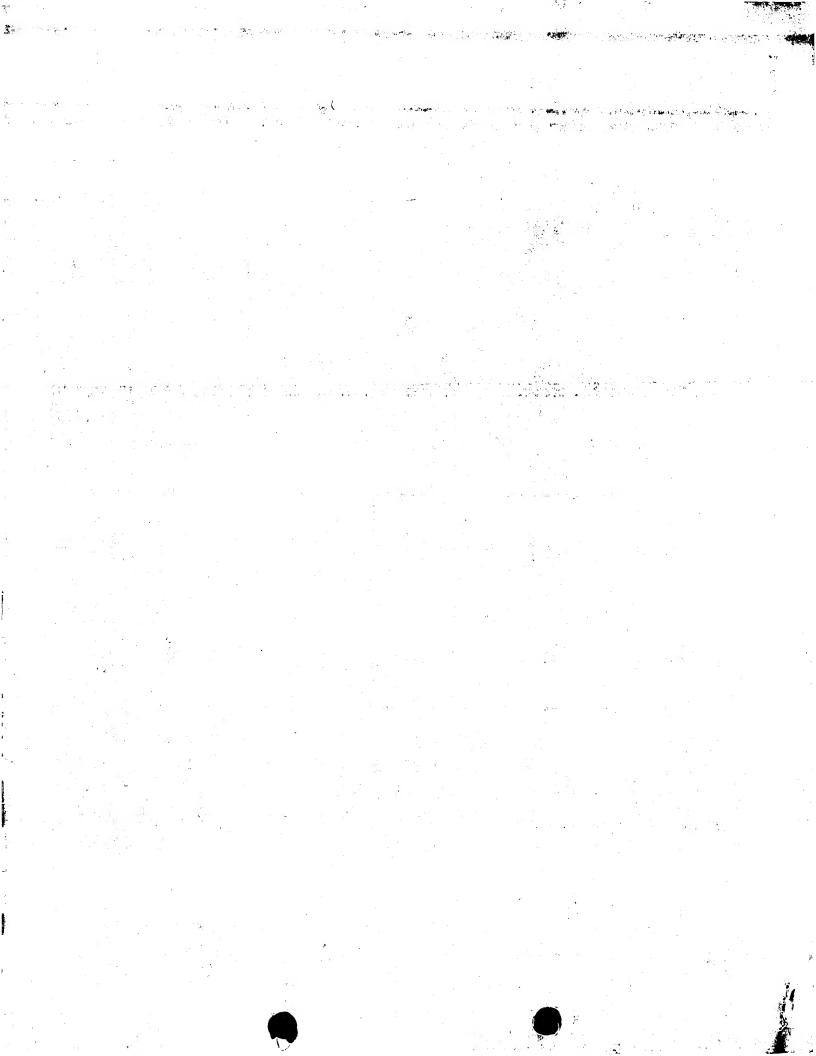
á

Length 70;

S

```
RESULT 15
1D 099517
AC 099517
DT 01-MAY-DT 01-MAY-DT 01-MAY-DT 01-MOV-DT 01-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         099517;
                                                                                                                                                                                                                                                                                                                   196
                                                                                                            g
                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Archosauria; Aves;
Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  71 KRLRRLYCNVGIGFHLQVLPDGRIHGMHSES-RYSLLEISPVERGVVCMFGVQSGLFLAM 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   209 DTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHYGQ 268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       130 NSKGRLFGSKYFSDECKFKEMLLPNNYNAYESWRYPGM--YIALSKNGRAKKGNKVSPTM 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
MEDLINE: 99065510.
MUNOZ-SANJUNA I., SIMANDL B.K., FALLON J.F., NATHANS J.;
MUNOZ-SANJUNA I., SIMANDL B.K., FALLON J.F., NATHANS J.;
MUNOZ-SANJUNA I., SIMANDL B.K., FALLON J.F., NATHANS J.;
MEXPESSION of Chicken fibroblast growth factor homologous factor
(FHF)-1 and of differentially splited isoforms of FHF-2 during
development and involvement of FHF-2 in chicken limb development.";
Development 126:409-421(1999).
EMBL: AT108754; AAD21575.; -
PROSITE: PSO0247; HBGF-FGF; 1.
SEQUENCE 243 AA; 27455 MW; A956E8CD CRC32;
                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Notophthalmus viridescens (Eastern newt) (Triturus viridescens).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Amphibia;
Batrachia; Caudata; Salamandroidea; Salamandridae; Notophthalmus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4 ;
                                                                                                                                                             ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 260; DB 13; Length 190
Pred. No. 1.09e-31;
31; Mismatches 48; Indels
                                                                                                          Length 59;
                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "Putative Newt Fibroblast Growth Factor-4.";
Submitted (OCT-1996) to the EMBL/GenBank/DDBJ databases.
EMBL, 976999; AAG9812.1; -.
HSSP: P090181; IBFF.
PROSITE; PS00247; HBGF_FGF; 1.
SEQUENCE 196 AA; 22033 MW; 455E08A3 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-NOV-1999 (TrEMBLrel. 12, Created)
01-NOV-1999 (TrEMBLrel. 12, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
FIBROBLAST GROWTH FACTOR 12 ISOFORM A.
FGF12.
Gallus gallus (Chicken).
                                                                                                                                                                                                                                                                                                                                                                                                                     01-MAY-1999 (TrEMBLrel. 10, Created)
01-MAY-1999 (TrEMBLrel. 10, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
PUTATIVE FIBROBLAST GROWTH FACTOR 4.
                                                                                                    Score 264; DB 4; Le.
Pred. No. 1.51e-32;
1; Mismatches 0;
                                                                                                                                                                                                                                       147 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQH 182
                                                                                                                                                                                                              21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQH 56
                                                      1C932B1D CRC32;
                                                                                                                                                                                                                                                                                                                                                                    196 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            243 AA
                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                                      59 AA; 6595 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
13.1%;
Best Local Similarity 34.6%;
Matches 44; Conservative
                                                                                                    Query Match
Best Local Similarity 97.2%;
Matches 35; Conservative
                                                                                                                                                                                                                                                                                                                                                                       PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRELIMINARY;
PFAM; PF00167; FGF; 1.
NON_TER 59 59
SEQUENCE 59 AA; 6595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A. WEI Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  269 KAILFLP 275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               188 TVTHFLP 194
                                                                                                                                                                                                                                                                                                                                                                                            Q9YH31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q9W6A1;
                                                                                                                                                                                                                                                                                                                                         JT 13
Q9YH31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              T 14
Q9W6A1
                                                                                                                                                                                                                                                                                                                                         RESULT
ID 099
AC 099
DT 011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8 F 8
                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SORRERERSOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ద
```

```
'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        э;
Э
                                                                            77 LF-SQQEYFLQMHPDGTIDGTKDENSDYTLFNLIPVGLRVVAIQGVKAGLYVAMNAEGYL 135
                                                                                                136 YSSDVFTPECKFKESVFENYYVIYSSTLYRQQESGRAWFLGLNKEGQIMKGNRVKKTKPS 195
                                                                                                                                                                            61 YSSDVFTPECKFKESVFENYYVVYSSTLYRQQESGRAWFLGLNKEGQIMKGNRVKKTKPS 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2 LF-SQQGYFIQMHPDGTIDGTKDENSDYTLFNLIPVGLRVVAIQGVKASLYVAMNGEGYL 60
                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COULIER F., PONTAROTII P., ROUBIN R., HARTUNG H., GOLDFARB M.,
BIRRBAUM D.;
J. Mol. EVO.1. 0:0-0(0).
EMBL: Z70276; CAA94240.1; -.
HSSP: P03968; lAFC.
PROSITE: PS00248; lAFC.
PROSITE: PS00247; FGF: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŝ
                                        5,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Primates; Catarrhini; Hominidae; Homo.
Length 243;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 127;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 251; DB 4; Length 127
Pred. No. 8.94e-30;
30; Mismatches 48; Indels
                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                        Created)
Last sequence update)
Last annotation update)
                                        48;
DB 13;
Score 257; DB 13;
Pred. No. 4.74e-31;
31; Mismatches 48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        127 127
127 AA; 14478 MW; 10E2842D CRC32;
                                                                                                                                                                                                                                                                                                                                                    Ą
                                                                                                                                                                                                                                                                                                                                                    127
                                                                                                                                                                                                                                                                                                                                                                                                                                                FIBROBLAST GROWTH FACTOR 12 (FRAGMENT)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Search completed: Tue Aug 29 16:04:20 2000 Job time: 158 secs.
                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                                                                                                                                                                                                                                      01-MAY-1997 (TrEMBLrel. 03, 01-MAY-1997 (TrEMBLrel. 03, 01-NOV-1999 (TrEMBLrel. 12,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity 34.6%;
Matches 44; Conservative
Ouery Match 13.0%;
Best Local Similarity 34.4%;
Matches 44; Conservative
                                                                                                                                                                                                                                                                                                                                                    PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  [1]
SEQUENCE FROM N.A
                                                                                                                                                                                                                                SHFVPKPI 203
                                                                                                                                                                                                                                                                      271 ILFLPLPV 278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121 SHFVPKP 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        271 ILFLPLP 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NON_TER
NON_TER
SEQUENCE
```



******	(TM)	*****
* * * * *	·	*****
****	'	****
******	[	********
******		*******
*****	<u></u>	*****
*****	'	*****
***************************************		***************************************
******		******
*******		******
***		* * *

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

protein - protein database search, using Smith-Waterman algorithm MasPar time 6.86 Seconds 593.829 Million cell updates/sec Tue Aug 29 16:09:47 2000; MPsrch\_pp

Tal Coular output not generated.

>US-09-121-017B-25 (1-172) from USO9121017B.pep 1242 1 MSRGAGRVQGTLQALVFLGV.....PRTHYGQKAILFLPLPVSSD 172 Title: Description: Perfect Score:

Scoring table:

Sequence:

PAM 150 Gap 11

Minimum Match 0% Listing first 45 summaries Post-processing:

188963 segs, 23686106 residues

Searched:

1:genesedp a-geneseq36 Database:

Mean 31.369; Variance 128.700; scale 0.244 Statistics:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SITMMARTES

		df			SUMMAKIES		
Besult No.	Score	Query Match	Length DB	DB	DI DI	Description	Pred.
	985	79.3	140	-	R25914	Human acidic fibroblas	2.79e-
7	985	79.3		-	R34497	Human acidic Fibroblas	2.79e
е	985	79.3		-4	P90068	Human acid fibroblast	.2.79e-
4	985	79.3		-	R74647	Human recombinant aFGF	
5	985	79.3	140	-4	W04806	Human acidic fibroblas	2.79e
9	985	79.3		-	P70995	Sequence of human prot	2.79e
7	985	79.3		-	R10527	Human acidic fibroblas	۲.
80	985	79.3		7	R05789	Human aFGF encoded by	7
6	985	79.3		٦	W92283	Human beta-endothelial	۲.
10	982	79.3		-	W04805	Human beta-endothelial	2.79e-
11	985	79.3		7	W06816	Human endothelial cell	۲.
12	985	79.3	154	7	W75414	Human beta-endothelial	•
13	985	79.3			P94037	Human acidic fibroblas	7
14	985	79.3		H	R70812	FGF-1.	2.79e-
15	985	79.3		н	P70482	Sequence encoded by co	
16	985	79.3		<del>, -</del> 1	R80776	Fibroblast growth fact	2.79e-
17	985	79.3		Н	W53022		۷.
18	985	79.3		Н	W75711		2.7
19	985	79.3		Н	W75415	Human endothelial cell	2.79e
20	985	79.3	155	Н	W92291	Human endothelial cell	2.79e.
21	985	79.3	165	Н	R05785	Human bECGF encoded by	2.79e·
22	985	79.3	168	Н	W06818	Human endothelial cell	2.79e-
23	983	79.1	134	Н	W75413	Human alpha-endothelia	4.48e

4.48e-87	4.48e-87	3.78e-86	6.07e-86	1.04e-84	1.04e-84	4.32e-84	4.32e-84	1.41e-83	1.91e-82	1.91e-82	8.40e-81	2.74e-80	2.74e-80	2.74e-80	2.74e-80	2.74e-80	2.74e-80	3.47e-80	3.70e-79	3.70e-79	1.53e-78
Human alpha-endothelia	Human alpha-endothelia	Fibroblast growth fact	Human endothelial cell	9 N-terminal residue d	aFGF mutein #2.	Recombinant human Alal	Human (Gly93) aFGF ana	Fibroblast growth fact	aFGF mutein #3.	12 N-terminal residue	Human acidic fibroblas	Bovine acidic fibrobla	Bovine recombinant aFG	Brain-derived acidic f	Bovine fibroblast grow	Bovine acidic Fibrobla	Human acidic fibroblas	Recombinant human muta	Recombinant bovine Ala	Bovine (Ala47,Gly93) a	Chimeric acid/basic fi
W92282	W04807	W71383	W06817	R11327	R25418	R25570	W00561	R65935	R25419	R11328	R05315	P90069	R74648	R13030	R65934	R34496	R25915	P90074	R25569	W00560	W01747
ч	ч	Н	Н	ч	-	-	٦	Н	-	Н	٦	Н	ч	н	-	-	-	н	н	-	ч
134	134	156	135	132	132	155	155	140	129	129	154	140	140	140	140	140	140	154	141	141	136
79.1	79.1	78.4	78.3	77.3	77.3	76.8	76.8	76.4	75.5	75.5	74.2	73.8	73.3	73.8	73.8	73.8	73.8	73.8	72.9	72.9	72.5
983	983	974	972	960	960	954	924	949	938	938	922	917	917	917	917	917	917	916	906	906	900
24	25	56	27	28	29	30	31	32	33	34	35	36	37	38	36	40	41	42	43	44	45

## ALIGNMENTS

Syncolatic antiviral composition contains BFGF and sulphated by Olyaaccharide for treating viral infections e.g. HSV-1 and -2, cytomegalovirus, HIV, influenza virus etc.

Tytomegalovirus, FIV, influenza virus etc.

Disclosure; Page 4; 20pp; English.

This sequence represents acidic fibroblast growth factor (aFGF).

aFGF, or its fragments may be used in synergistic compsn. with an antivirally active sulphated polysaccharide, and one or more artifers and page and one or more carcipients. The compsn. may be used to control herpes simplex virus (HSV-1 or -2) herpes varicella/zoster; cytomegalovirus; influenza; human respiratory syncytial virus; Semliki Forest virus; HIV or Moloney Sarcoma virus. The combination of aFGF with sulphated copysaccharide is found to have a greater antiviral activity than sequence 140 AA; 126-JAN-1993 (first entry)
Human acidic fibroblast growth factor.

Viral infections; viruses; FGF; herpes simplex virus; HSV-1; HSV-2; herpes varicella; herpes zoster; cytomegalovirus; influenza; human respiratory synoytial virus; Semliki Forest virus; HIV; human immunodeficiency virus; Moloney Sarcoma virus. EP-497341-A.

6D-407341-A.

6D-406-1992.
30-74N-1991, GB-002145.

69-7AN-1992; GB-000410.

67-74N-1992 GB-000410.

8atilstin C, Carminati P, Garofano L, Mazue G, Ungheri D; WPI; 92-260792/32. R25914 standard; peptide; 140 AA. R25914; Homo sapiens. NAME OF THE PROPERTY OF THE PR

0; Gaps Length 140; Score 985; DB 1; Length 140 Pred. No. 2.79e-87; 2; Mismatches 0; Indels Match 79.3%; Local Similarity 98.5%; les 134; Conservative Query Match Best Local Matches

ö

64 5 PGNYKKPKLI,YCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQY

셤 à

65 LAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTH 124 97 QQ δ

125

g

YGOKAILFLPLPVSSD 140

R34497;

ò

```
SANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQY 96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  W04806 standard; Protein; 140 AA.
                                                                                                                                                                                                                                                                                                                                       standard; protein; 140 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Kelly LJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity 98.5%;
Matches 134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   125 YGQKAILFLPLPVSSD 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      125 YGQKAILFLPLPVSSD 140
                                                                                                                                                                                                      11-JUL-1986; US-884460.
04-JUN-1987; US-054991.
04-MAY-1988; US-190293.
08-FEB-1991; US-654397.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 25-SEP-1991; US-765472
25-SEP-1992; US-951365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (MERI ) MERCK & CO INC
Gimenez-Gallego G, Re
WPI; 95-138983/18.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-685923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens.
US5401832-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         24-DEC-1984;
24-DEC-1984;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12-SEP-1985;
30-MAY-1986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28-MAR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mitogen.
                                                                                                                                                                                                                                                                                                                                                                    R74647;
                                                                                                                                                                                                                                                                                                                                     R74647
                                                                                                             97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT WO WO AC WO DT 29 DE HU KW ED KW FG OS HO
                                                                                                                                                                                                                                                                                                           NATURE SOLITOR SOLITOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                   셤
                                                                                                                ö
                                                                                                                                                                 원
                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     65 LAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTH 124
                                                                                                                                                                                                                                                                                                                                                                                                                                            FGF mutein prepn. useful for therapy of burn or thrombosis - by transformation of lymphocyte-contained animal cell by vector contg. DNA encoding FGF mutein Disclosure; Page 3; 23pp; Japanese.

The invention covers muteins of FGF (esp., DFGE), which contains least one glycosylation site. The muteins can be used to treat burns and thrombosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5 PGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQY 64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQY 64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Disclosure; page 4; 36pp; English.
Amino acid sequence of human acidic fibroblast growth factor (aFGF). The patent claims mutant forms which have increased biological activity with(out) heparin, and promote
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI: 89-167092/23.
Mutant acidic fibroblast growth factor
- used for promoting repair of soft tissue, musculoskeletal tissue or vascular or nerve tissue and plasminogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 985; DB 1; Length 140;
Pred. No. 2.79e-87;
2; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 985; DB 1; Length 140
Pred. No. 2.79e-87;
2; Mismatches 0; Indels
                                                                                                                                                                 06-AUG-1993 (first entry)
Human acidic Fibroblast Growth Factor.
aFGF; mutein; glycoslation site; glycoprotein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1-NOV-1989 (first entry)
Human acid fibroblast growth factor
Human acidic fibroblast growth factor; mutant.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JT 3
P90068 standard; protein; 140 AA.
                                                                                T 2
R34497 standard; protein; 140 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Thomas Jnr KA, Linemeyer DL;
                                                                                                                                                                                                                                                                                                                                                                                     (TAKE ) TAKEDA CHEM IND LTD.
WPI; 93-139564/17.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 79.3%;
Best Local Similarity 98.5%;
Matches 134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 79.3%;
Best Local Similarity 98.5%;
Matches 134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   125 YGQKAILFLPLPVSSD 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     YGOKAILFLPLPVSSD 172
157 YGOKAILFLPLPVSSD 172
                                                                                                                                                                                                                                                                                                                                  30-MAY-1991; 127435.
31-MAY-1990; JP-143388.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   14-OCT-1988; 202306.
22-OCT-1987; EP-244431.
(MERI) Merck and Co.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               140 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                140 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                activator prodn.
                                                                                                                                                                                                                                                       Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens
EP-319052-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cell growth.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              P90068;
1-NOV-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               14-JUN-1989
                                                                                                                                                                                                                                                                                                              30-MAR-1993
```

157

ö

ద

ò

셤

g ö RESULT

4 8 B B B

Sequence

ស្តមន

```
65 LAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTH 124
65 LAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTH 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5 PGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQY 64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   W04806;
9-DBC-1996 (first entry)
Human acidic fibroblast growth factor.
Endothelial cell growth factor; ECGF; blood vessel; regeneration;
heparin-Sepharose affinity chromatography; probe; oligonucleotide;
FGF; fibroblast growth factor; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            New recombinant human acidic fibroblast growth factor - used to promote cell growth, to promote wound healing, for vascular grafts and blood vessel repair
Claim 2: Column 30: 25pp: English.
Oligonucleotides were synthesized on the basis of the amino acid sequence of bovine acidic fibroblast growth factor (aFGF) and used to produce a synthetic gene (given in Q88233) incorporating codons preferred by E. coli or manmalian cells, unique cloning sites, etc. This synthetic gene was mutagenized to obtain a gene encoding a human recombinant aFGF (R74647) having activity sequivalent to the native protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   25-SEP-1995 (first entry)
Human recombinant aFGF.
Acidic fibroblast growth factor; aFGF; vulnerary; angiogenesis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 985; DB 1; Length 140;
Pred. No. 2.79e-87;
2; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Linemeyer DL,
```

ö

Sequence

Query Match

P. 7.

윱

ą

```
9
                                                                                                                                                                                                                                                                                                                          157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 157
                                                                                                                                                                                                                                                                                                                                                                                                 RESULATION OF THE PROPERTY OF 
                                                                        엄
                                                                                                                       ò
                                                                                                                                                                      셤
                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               පු
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                       W03999) having
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   97 LAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTH 156
                                                                                                                                                                                                                                                                                      Insolated, purified, biologically active bovine beta endothelial cell growth factor - useful to regenerate or treat damaged blood vessels Disclosure; Fig 8: 28pp; English.

Bovine beta-endothelial cell growth factor (beta-ECGF; W03999) having a mol.wt. of 20 kD can be purified at least 16300 fold from bovine brain using heparin-Sepharose affinity chromatography. ECGF is potential in the treatment of damaged blood vessels or other endothelial cell-lined structures. Human ECGF (137509) or fragments may be obtained using onlygonucleotides (T37504 and T37508 to T37509) whose design is based on the sequence of bovine alpha- and beta-ECGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mitogenic polypetide isolated from human brain tissue - useful for increasing vascular effect in eg wound healing, or generating endothelial cell linings for vascular prostheses, etc. Claim 3; Page. 1; 31pp; English.

The PF of the invention was obtd. from human brain tissue. It has a mon. wt. of 15,200-16,500 (pref. 15,516-16,056) and has a high affinity for heparin. PFl and fragments are useful for promoting the growth of mesoderm-derived cells or neuroectoderm-derived cells and generating endothelial cell linings for vascular prostheses (all sequence 140 AA).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       13-JUN-1991 (first entry)
Sequence of human proteinaceous factor (PFI) with mitogenic activity.
Cell growth promoter; mitogen; vascularisation; wound healing.
Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5 PGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             37 SANYKKPKLIYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVIKSTETGQY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 985; DB 1; Length 140;
Pred. No. 2.79e-87;
2; Mismatches 0; Indels
                                                                                                                                                                                           (RHON ) RHONE POULENC RORER PHARM INC.
Burgess W, Maciag T;
WPI; 96-412132/41.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   T 6
P70995 standard; protein; 140 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    06-MAR-1987; 301969.
07-MAR-1986; US-838096.
(HARD) HARVARD COLLEGE.
LODD RR, HARPET JW, Strydom DJ;
WPI; 87-285995/41.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /label- Asp-OH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 79.3%;
Best Local Similarity 98.5%;
Matches 134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         125 YGQKAILFLPLPVSSD 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18-DEC-1987; US-134499
29-APR-1991; US-693079
27-NOV-1991; US-799859
03-NOV-1994; US-334884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_difference 140
                                                                                                                                                                                                                                                                         N-PSDB; T37503
                                                                        03-MAR-1986;
                                         03-MAR-1986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EP-241136-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14-0CT-1987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       P70995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
ပ္ပ်ပ္ပစ္တ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                    LAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTH 124
                                                                                          5 PGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQY 64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6 PGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG()Y 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Anti-acid antibody, for cancer diagnosis, etc. - is obtd. by using complex of partial peptide(s) of acid fibroblast growth factor and protein as antigen.

Disclosure: Fig 1; 19pp; Japanese.

The was deduced from a gene used to produce recombinant : FGF.

Peptides derived from the protein, esp. from A-D can be used to as antigens to produce anti-aFGF antibodies. The peptides aust comprise 8-10 continuous AAs from A or B (claims 5 and 6 resp.).

7-10 continuous AAs from C (claim 7), or 8-9 continuous AAs from D (claims 9. The Abs from D (claims 9. The Abs can be used for immunochemically me.suring aFGF, and for purifying aFGF. They are useful as reagents if the diagnosis of various cancers or diseases of the CNS. Purified aFGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 141;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 has wound healing and nerve cell proliferating properiies Sequence 141 AA;
                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 985; DB 1; Length 141
Pred. No. 2.79e-87;
2; Mismatches 0; Indels
Pred. No. 2.79e-87;
2; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                               15-APR-1991 (first entry)
Human acidic fibroblast growth factor gene.
aFGF; antibody; antigen; cancer; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                    R10527 standard; Protein; 141 AA.
R10527;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (TAKE ) TAKEDA CHEMICAL IND KK. WPI; 91-040150/06.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity 98.5%;
Matches 134; Conservative
Best Local Similarity 98.5%;
Matches 134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2. .12
/label= A
56. .67
/label= B
104. .114
/label= C
132. .141
/label= D
                                                                                                                                                                                                                                                  125 YGQKAILFLPLPVSSD 140
                                                                                                                                                                                                                                                                            YGQKAILFLPLPVSSD 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                YGQKAILFLPLPVSSD 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        03-JUL-1989; 172542.
04-JUL-1988; JP-166275.
03-JUL-1989; JP-172542.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N-PSDB; Q10399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Homo sapiens,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     J02306996-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20-DEC-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           region
```

RESULT

79.3%; Score 985; DB 1; Length 140;

Query Match

US-09-121-017B-25.rag

Length 154;

```
This represents the amino acid sequence of human beta-endothelial cell growth factor (ECGF). The invention is directed to DNA encoding alpha or beta-ECGF and plasmids comprising the DNA sequences. The DNA encodes a cleavable signal peptide and an ECGF, where removal of the signal peptide yields a mature form of the ECGF. The DNA is used to produce recombinant ECGF proteins, which can be used in treatments to repair or regenerate blood vessels or other structures lined with endothelial cells.
                                     DNA encoding a cleavable signal peptide and an endothelial cell growth factor - useful for producing recombinant endothelial cell growth factor proteins
                                                                                                                                                                                                                                                                                   Score 985; DB 1;
Pred. No. 2.79e-87;
   Drohan WN, Jaye M, Maciag T;
                                                                                                                                                                                                                                                                                   79.3%;
98.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 79.3%;
Best Local Similarity 98.5%;
Matches 134; Conservative
                                                                                                                                                                                                                                                                                                                         134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                157 YGQKAILFLPLPVSSD 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               139 YGQKAILFLPLPVSSD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-835594.
US-134499.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         29-APR-1991; US-693079,
27-NOV-1991; US-799859,
03-NOV-1994; US-334884,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-693079
                                                                                                                                                                                                                                                                                                     Local Similarity
                                                                                                                                                                                                                                                154 AA;
Burgess W, Drohan
WPI; 99-069734/06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  03-MAR-1986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       18-DEC-1987;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      03-MAR-1986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   03-SEP-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                           Claim 2, Fig 3a; 120 micrograms of specifical regions.

The synthetic arcg gene incorporates useful restriction sites at frequent intervals to facilitate the cassette mutagenesis of selected regions. Also included are flanking sites to simplify the incorporation of the gene into any expression system. The arcg mol. acts in a cascade effect to control endothalial cell activity either co-ordinately through synergistic effects or via independent routes. The regulation of endothelial cells is essential for the protection of arteries, velns and capillaries from the effect of thrombogenesis. Their slimulation and control by these factors is also thought to be important in the development of tumours and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTH 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Endothelial cell growth factor; ECGF; cleavable; recombinant; repair; regenerate; blood vessel; endothelial cell; human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQY 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human beta-endothelial cell growth factor (ECGF) protein sequence.
Endothelial cell growth factor; ECGF; cleavable; recombinant; reps
                                                                                                                                                                                                                                                                                                                                                                               ಭ
                                                                                                                                                misc_difference 146. .147 / 1000 \, \rm km^2 for two stop codons of
                                                                                                                                                                                                                                                                                                                                                                           incorporates useful restriction sites at frequent intervals facilitate cassette mutagenesis of specified regions.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 985; DB 1; Length 151;
Pred. No. 2.79e-87;
2; Mismatches 0; Indels
                                   22-AUG-1990 (first entry)
Human aFGF encoded by synthetic gene.
Acidic fibroblast growth factor; aFGF; thrombogenesis;
                                                                                                                                                                                                                                                                                                                                                              Gene encoding human acidic fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (RHON ) RHONE-POULENC RORER PHARM INC
                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        W92283 standard; protein; 154 AA.
W92283;
                                                                                                                                                                                    the DNA sequence
R05789 standard; Protein; 151 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ry Match 79.3%; t Local Similarity 98.5%; ches 134; Conservative
                                                                                                                                                                                                                                                                                (BRBI-) Brit Bio-Tech Ltd. Davies JA, Johnson ID; WPI; 90-109882/15. N-PSDB; Q03873.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            YGQKAILFLPLPVSSD 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20-APR-1999 (first entry
                                                                                           atherosclerosis; tumors.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-334884.
US-472964.
US-840088.
                                                                                                                                                                                                                                            08-AUG-1988; 018775.
08-AUG-1988; GB-018775.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-835594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            840088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            151 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            atherosclerosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               29-APR-1991;
27-NOV-1991;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               03-MAR-1986;
18-DEC-1987;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         07-JUN-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  04-NOV-1996;
                                                                                                                                                                                                         GB2223496-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .5-DEC-1998
                                                                                                               Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            03-NOV-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
```

셤

ద õ

#\$\$\$\$\$\$\$\$\$\$\$\$\$\$

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Disclosure: Fig 8: 28pp; English.

Bovine beta-endothelial cell growth factor (beta-ECGF; W03999) having a mol. wt. of 20 kD can be purified at least 16300 fold from bovine brain using heparin-Sepharose affinity chromatography. ECGF is useful for, among other purposes, diagnostic applications and has potential in the treatment of damaged blood vessels or other endothelial cell-lined structures.

Human ECGF (137503) or fragments may be obtained using oligonucleotides (T37504 to T37508 to T37509) whose design is based on the sequence of bovine alpha- and beta-ECGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           97 LAMDTDGLLYGSQIPNEECLFLERLEENHYNTYISKKHAEKNWFVCLKKNGSCKRGPRTH 156
                                                                                                                                                                                                                                                                                                                                                                                                                           79 LAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTH 138
                                                                                                                                                  78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Isolated, purified, biologically active bovine beta endothelial cell growth factor - useful to regenerate or treat damaged blood vessels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19 PGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQY 78
       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              W04805 standard; Protein; 154 AA.
W04805.
W04806.
W04905.
W04905.
W04905.
W04905.
W04905.
W04905.
W04905.
W04906.
W049
                                                                                                                                                  19 PGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQY
                                                                                                                                                                                                                            ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 985; DB 1; Length 134. Pred. No. 2.79e-87;
       0; Indels
2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (RHON ) RHONE POULENC RORER PHARM INC.
Burgess W, Maciag T;
WPI: 96-41132/41.
N-PSDB; T37503.
```

RESULT

ð 윤 ö 쉽 ò

•

)

W06816;

```
Compositions for promoting wound healing - containing endothelial cell growth factor polypeptides call growth factor polypeptides claim 1, Column 16, 20pp; English.

This sequence represents the amino acid sequence of the mature human beta-endothelial cell growth factor (b-ECGF). This amino acid sequence 1s identical to the alpha-ECGF but the beta sequence contains an extra 20 N-terminal amino acids. The sequence was isolated from a human brain stem cell cDNA library using a probe designed based on fragments of the bovine ECGF (see W75116-W75418). The ECGF protein can be used in compositions for promoting wound healing. ECGF is also used to grow sequence 154 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LAMDTDGLLYGSQTPNEECLFLEENHYNTYISKKHAEKNWFVCLKKNGSCKRGPRTH 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20 PGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQY 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 985; DB 1; Length 154
Pred. No. 2.79e-87;
2; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 985; DB 1; Leng{ 155
Pred. No. 2.79e-87;
2; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Recombinant DNA encoding new fibroblast growth factor analogues - useful eg for accelerating wound healing and to control neovascularisation.
                                                                                                                                                                      Burgess W, Drohan WN, Jaye M, Maciag T; WPI; 98-594032/50.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               factor.
                                                                                                                                                      (RHON ) RHONE-POULENC RORER PHARM INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   06-JUL-1988; 306158.
07-JUL-1988; US-070797.
18-DT-) Biotechn Res Assoc.
Fiddes JC, Abraham JA, Protter A;
WPI; 89-009785/02.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    T 13
P94037 standard; protein; 155 AA.
P94037;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         25-JUN-1990 (first entry)
Human acidic fibroblast growth f
Acidic fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                           79.3%;
ilarity 98.5%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 79.3%;
Best Local Similarity 98.5%;
Matches 134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            139 YGQKAILFLPLPVSSD 154
                                                          US-134499
                                                                          29-APR-1991; US-693079.
27-NOV-1991; US-799859.
03-NOV-1994; US-334884.
07-JUN-1995; US-472964.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Disclosure; p; English.
See also P94038.
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N-PSDB; N93088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens.
EP-298723-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                134;
                                       03-MAR-1986;
18-DEC-1987;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11-JAN-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Seguence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             80
   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                 79 LAMDIDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTH 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         damaged blood vessels, etc.
Claim 1: Column 16: 22pp: English.
Human recombinant endothelial cell growth factors (ECGF) beta
Human recombinant endothelial cell growth factors (ECGF) beta
(W06816) and alpha (W06817) differ only at their N-terminal ends.
They can be produced in transformed prokaryotic or eukaryotic host
cells using DNA sequences (T45983 and T45984, respectively) derived
from the complete human ECGF CDNA (T45885). Large quantities of
the ECGFs are produced by culturing the host cells and recovering
the proteins. ECGFs have utility in the growth and amplification
of endothelial cells in culture. They can potentially be used to
treat damaged blood vessels and other endothelial cell-lined
structures, and also have diagnostic applns.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     19 PGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQY 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
37 SANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Recombinant human endothelial cell growth factors - for treating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  probe;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 985; DB 1; Length 154;
Pred. No. 2.79e-87;
2; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  W75414 standard; protein; 154 AA.
W75414;
W2-MAR-1999 (first entry)
Human beta-endothelial cell growth factor.
Human; endothelial cell growth factor; ECGF; brain stem; hybridisation; bovine; wound healing; prosthetic device.
                                                                                                                                                                                                                                                                                    Human endothelial cell growth factor-beta.
Endothelial cell growth factor-beta; ECGF-beta.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Jaye M, Maciag T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (RHON ) RHONE POULENC RORER PHARM INC.
Burgess W, Drohan WN, Jaye M, Macie
WPI: 95-505421/50.
N-PSDB: T45983.
                                                                                                                                                                                                                           W06816 standard, Protein; 154 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Nuery Match
Sest Local Similarity 98.5%;
atches 134; Conservative
                                                                                                                                                                                                                                                                17-MAR-1997 (first entry)
                                                                                                                                   139 YGOKAILFLPLPVSSD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            157 YGQKAILFLPLPVSSD 172
                                                                                                             139 YGQKAILFLPLPVSSD 154
                                                                                                                                                                                                                                                                                                                                                                  05-NOV-1996.
03-MAR-1986; 835594.
03-MAR-1986; US-835594.
18-DEC-1987; US-134499.
29-APR-1991; US-693079.
27-NOV-1991; US-799859.
03-NOV-1994; US-334884.
                                                                                                                                                                                                                                                                                                                           Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens.
US5827826-A.
27-OCT-1998.
                                                                                                                                                                                                                                                                                                                                           US5571790-A
                                                                                                                                                                                                                                                                                                                                                                05-NOV-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
```

**Ouery Match** 

ŏ 셤 셤

ò

ò

ö

o; Gaps

Length 154;

ö

0; Gaps

Leng? 155;

```
BIOTECH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
       ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LAMDIDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRIH 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FGF-1.
FGF-1; fibroblast growth factor; cytotoxic conjugate; fusion protein; saporin; cytostatic; tumor; diabetes; rheumatoid arthritis.
Homo sapiens.
97 LAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTH 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Disclosure; Page 108-109; 128pp; English.

Novel fusion proteins comprise FGF linked to saporin. FGF-1 to -9
may be used, pref. FGF-1 (R70812), FGF-5 (R70813), FGF-7 (R70814) or
FGF-8 (R70815) muteins, in which at least 1 Cys residue is replaced
by conservative Ser substitutions. The fusion proteins are potent
cytocidal agents to cells bearing the FGF receptor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20 PGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQY 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                New monogenous preparations of cytotoxic conjugates and DNA -contain fibroblast growth factors and cytotoxic agents for treating FGF conditions such as tumours, diabetes and rheumatoid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    13-MAY-1991 (first entry)
Sequence encoded by complete CDNA sequence of human endothelial cell growth factor (ECGF).
Endothelial cell regeneration; blood vessel regeneration.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 985; DB 1; Length 155
Pred. No. 2.79e-87;
2; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note= "Cys may be replaced by Ser"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note= "Cys may be replaced by Ser"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   02-AUG-1993; US-099924.
29-OCT-1993; US-145829.
(PRIZ-) PRIZM PHARM INC.
(WHIT-) WHITTIER INST DIABETES & ENDOCRINOLOGY.
BAILd AJ, Lappi DA, SOSNOWSKI BA;
WPI; 95-082038/11.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2. .15
/label= Beta ECGF
16. .21
/label= Acidic FGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            22. .155
/label- Alpha ECGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 T 15
P70482 standard; Protein; 155 AA.
                                                                                                                                                                                                                                                                         T 14
R70812 standard; protein; 155 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 79.3%;
Best Local Similarity 98.5%;
Matches 134; Conservative
                                                                                                                                                                                                                                                                                                                                                R70812;
01-SEP-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              YGOKAILFLPLPVSSD 172
                                                                           140 YGQKAILFLPLPVSSD 155
                                                                                                              157 YGQKAILFLPLPVSSD 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       140 YGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           09-FEB-1995.
27-JUL-1994; U08511.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            misc_difference 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_difference 31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           arthritis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    P70482;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
ID P7
AC P7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                            ID DT DE DE CENTRAL CONTROL CO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ô
                                                                                                                                                      à
ò
```

```
Daye M, Burgess W, Maciag T, Drohan W;

R N-PSDB; N0788

R Human endothelial cell growth factor - produced by recombinant

T Human endothelial cell growth factor - produced by recombinant

T DNA techniques, useful for wound healing

S Example; Fig 8; 43pp; English.

C ro screen the human brain stem cDNA library for clones contg. ECGF

Inserts, a specific oligonucleotide was designed. This

c oligonucleotide was based upon a partial AA sequence analysis of

the aminot terminans of ECGF (see P70480 and P70481). Fig 3c sets

C forth for comparison the AA sequence of cyanogen bromide-cleaved

bovine alpha and beta ECGF (P70834). The two clones that were

c isolated, ECGF clones 1 and 29, were analysed in further detail. The

nucleotide sequence of these clones and the AA sequence deduced from

the nucleot acid sequence is shown in Fig 8 (see N70788 and P70482).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                80 LAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTH 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20 PGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQY 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 985; DB 1; Length 155
Pred. No. 2.79e-87;
2; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Search completed: Tue Aug 29 16:10:00 2000 Job time: 13 secs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity 98.5%;
Matches 134; Conservative
                                                                                             (MELO-) MELOY LAB INC.
(RORE ) RORER BIOTECHN INC.
(RORE-) RORER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              140 YGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  02-MAR-1987; U00425.
03-MAR-1986; US-835594.
26-MAR-1987; ES-000812.
```

ö

7

******	(TM)	*****
***************************************		***************************************
********	[	******
*******		********
*******		********
*******		*******
******	<u></u>	********
*******		********

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

protein - protein database search, using Smith-Waterman algorithm Tue Aug 29 16:09:12 2000; MasPar time 10.82 Seconds 750.147 Million cell updates/sec : uo

MPsrch\_pp

Igoular output not generated.

>US-<u>09-121-017B-25</u> (1-172) from <u>USO9121017B.pep</u> 1242 1 MSRGAGRVQGTLQALVFLGV......PRTHYGQKAILFLPLPVSSD 172 Description: Perfect Score: Sequence:

PAM 150 Gap 11 Scoring table:

142080 seqs, 47172406 residues Searched:

Post-processing: Minimum Match 0% Listing first 45 summaries

pir64 1:pirl 2:pir2 3:pir3 4:pir4 Database:

Mean 43.226; Variance 75.292; scale 0.574 Statistics:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

8	Outery Matery 79.3 77.8 77.8 77.8 77.8 77.8 77.8 77.8 77	ren		JUMPARATES A3365 A3365 A3365 B33365 B33465 B33622 A60130 A60130 A60130 A31674 A31674 A40117 A40117 A6111 A6111 A6111 A6111	Description  acidic fibroblast gro basic fibroblast grow fibroblast growth fac fibroblast growth fac	Pred. No.  3.91e.199 4.47e.195 4.47e.195 4.46-194 1.34e.194 6.43e.194 1.11e.183 1.11e.183 2.67e.190 2.60e.92 7.50e.92 7.50e.93 3.53e.88 3.53e.88 3.53e.88 1.70e.79
20 329 21 324 22 302 23 299	26.5 26.1 24.3 24.1	207 207 194	7777	JC5941 JC5940 S49501 A36301	growth growth growth growth	7.12e-47 8.75e-46 5.06e-41

1.364 1.364 1.364 1.364 1.364 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.366 1.	4.26e-27 4.26e-27 1.10e-26 2.83e-25 2.98e-25
keratinocyte growth far fibroblast growth fac embryonic fibroblast fibroblast growth fac embryonic Fibroblast transforming protein fibroblast growth fac HST protein - bovine transforming protein fibroblast growth fac fibroblast growth fac	basic fibroblast grow transforming protein keratinocyte growth f transforming protein transforming protein fibroblast growth fac
148610 525049 523595 523595 5150710 5150710 704207 7040708 7040708 7040708 7040708 7040708 7040708 7040708	A32484 S39582 B46289 TVMST2 TVMSHS
000000000000000000000000000000000000000	717717
446111199444444444444444444444444444444	125 237 245 202 239
22222233333333333333333333333333333333	19.0 18.8 18.7 18.3
22222222222222222222222222222222222222	236 234 237 227
22222222222222222222222222222222222222	44444 042840

### ALIGNMENTS

```
##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CLASSIFICATION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                           #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #journal
#title
                                                                                                                                                 #authors
                                                                                                                                                                        #journal
                                                                                                                                                                                                                                                                                                                                                                                                                  #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            16-155
                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENETICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QΩ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #authors Payson, R.A.; Canatan, H.; Chotani, M.A.; Wang, W.P.; Harris,
S.E.; Myers, R.L.; Chiu, I.M.
#journal Nucleic Acids Res. (1993) 21:489-495
#title Cloning of two novel forms of human acidic fibroblast growth factor (aRGF) mRNA.
#cross-references MUID:93181239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##cross-references GB:M60515; NID:q178226; PIDN:AAA51672.1; PID:g553170; GB:M60516; NID:q178232; PID:g553171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #authors Yu, Y.L.; Kha, H.; Golden, J.A.; Migchielsen, A.A.J.; Goetzl, E.J.; Turck, C.W.
#journal J. Bxp. Med. (1992) 175:1073-1080
#title An acidic fibroblast growth factor protein generated by alternate splicing acts like an antagonist.
#cross references MUID:92202857
                                                                                                                                                                                                                                                                                                                                                                                                                                   ##molecule_type mRNA
##residues 1-155 ##label JAX
##cross-references GB:M13361; NID:g181941; PIDN:AAA79245.1; PID:g181942
##cross-references GB:M13361; NID:g181941; PIDN:AAA79245.1; PID:g181942
                                                                                                                                            ##molecule_type mRNA
##residues 1-155 ##label CHI
##cross-references EMBL:X51943; NID:932435; PIDN:CAA36206.1; PID:932436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type mRNA
##residues 1-155 ##label YUY
##cross-references GB:X65778; NID:g396163; PIDN:CAA46661.1; PID:g396164
#authors Chiu, I.M.; Wang, W.P.; Lehtoma, K.
#journal Oncogene (1990) 5:755-762
#title Alternative splicing generates two forms of mRNA coding for human heparin-binding growth factor 1.
#cross-references MUID:90265618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Crumley, G.; Dionne, C.A.; Jaye, M.
Biochem. Biophys. Res. Commun. (1990) 171:7-13
The gene for human acidic fibroblast growth factor encodes
two upstream exons alternatively spliced to the first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A. Biochem. Biophys. Res. Commun. (1986) 138:611-617
The complete amino acid sequence of human brain-derived
                                                                                                                                                                                                                                         #authors Jaye, M.; Howk, R.; Burgess, W.; Ricca, G.A.; Chiu, I.M.;
Ravera, M.W.; O'Brien, S.J.; Modi, W.S.; Maciag, T.;
Droban, W.N.
Science (1966) 233:541-545
# Human endothelial cell growth factor: cloning, nucleotide
sequence, and chromosome localization.
#cross-references MUID:86261805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #authors Harper, J.W.; Strydom, D.J.; Lobb, R.R.
#journal Biochemistry (1986) 25:4097-4103
#cross-references MUID:86296647
#accession A23553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##molecule_type protein
##residues 16-155 ##label HAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##molecule_type mRNA
##residues 1-58 ##label PAY
##cross-references GB:L01485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1-40 ##label RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type mRNA
##residues 1-58 ##label PA2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     coding exon.
#cross-references MUID:90365758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##cross-references GB:L01487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##status
##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A23553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A24820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        139413
                                                                                                                                                                                                                                                                                                                                                                                                               A24662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S35535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         $35536
                                                                                                                           A43804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##residues
                                                                                                                                                                          ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #accession
                                                                                                                             #accession
                                                                                                                                                                                                                                                                                                                                                                                                                       #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #authors
#journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #authgrs
#journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
```

```
#product fibroblast growth factor 1 #status experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                *dutnors Gautschi-Sova, P.; Muller, T.; Bohlen, P. Biochem. Biophys. Res. Commun. (1986) 140:874-880 #title Amino acid sequence of human acidic fibroblast growth factor. #cross-references MUID:87048871 #accession A26386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A53639
Chavan, A.J.; Haley, B.E.; Volkin, D.B.; Marfia, K.E.;
Verticelli, A.M.; Bruner, M.W.; Draper, J.P.; Burke, C.J.;
Middaugh, C.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cession
##molecule_type protein
##residues 16.30,'X',32.38;73-75,'X',77-97,'X',99-101;128-131,'X',
##residues 133-140,'X',142-152 ##label CHA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                  Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A. Blochem. Blophys. Res. Commun. (1986) 135:441-548 Human brain-derived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitogenic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       80 LAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTH 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Biochemistry (1994) 33:7193-7202
Interaction of nucleotides with acidic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20 PGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQY 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gautschi, P.; Frater-Schroder, M.; Bohlen, P. FEBS Lett. (1986) 204:203-207 Partial molecular characterization of endothelial cell mitogens from human brain: acidic and basic fibroblast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #binding_site carbohydrate (Asn) (covalent) #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #length 155 #molecular-weight 17460 #checksum 9243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       alternative splicing; growth factor; heparin binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #gene GDB:FGF1; FGFA #fcross-references GDB:119909; OMIM:131220 #fer_mossition 5431.3-5433.2 #introns #571; 91/3 strictor #sirtrons #superfamily fibroblast growth factor SSIFICATION #superfamily fibroblast growth factor
acidic fibroblast growth factor.
#accession A24820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##molecule_type protein
##residues 16-155 ##label GA2
                                                                                                                                    16-155 ##label GIM
                                                                                                                                                                                                                                                                                                                                                                 ##molecule_type protein
##residues 16-47 ##label GI2
##experimental_source brain
PNCE A91364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #label MAT\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                factor (FGF-1).
#cross-references MUID:94271773
#accession A53639
                                                                                                                                                                                                                                                                                                                 #cross-references MUID:86186784
#accession A24243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            growth factors.
#cross-references MUID:86275260
#accession A24301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##experimental_source brain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 79.3%;
Best Local Similarity 98.5%;
Matches 134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           absent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##molecule_type protein
                                                                                                      ##molecule_type protein
                                                                                                                                                                                                                                                                                                 activities
                                                                                                                                                            A90122
```

m

ö

ð

```
##molecule_type DNA
##residues 1-155 ##label MAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S04147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S04147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CLASSIFICATION
KEYWORDS
SUMMARY
                                                                                                                                CLASSIFICATION
SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                     #introns
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                              141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                       GENETICS
                                                                                                        taene
                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                    ă
                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏ
                                                                                 A60721 #type complete
acidic fibroblast growth factor - golden hamster
heparin-binding growth factor 1
#formal_name Mesorcricetus auratus #common_name golden hamster
10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Dev. Biol. (1990) 138:454-463
Isolation of cDNAs encoding four mouse FGF family members and
characterization of their expression patterns during
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        H.; Harris, S.E. C. C. C. Blochem. (1990) 43:17-26 Characterization of the hamster DDT-1 cell aFGF/HGBF-I gene and cDNA and its modulation by steroids.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hebert, J.M.; Basilico, C.; Goldfarb, M.; Haub, O.; Martin,
                                                                                                                                                                                                          Hall, J.A.; Harris, M.A.; Malark, M.; Mansson, P.E.; Zhou,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LAMDTDGLLYGSQTPNEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGPRTH 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20 PGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQY 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #formal_name Mus musculus #common_name house mouse
17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change
                                                                                                                                                                                                                                                                                                                                        #Superfamily fibroblast growth factor
growth factor; heparin binding
#length 155 #molecular-weight 17403 #checksum 9573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gene (1996) 179:231-236
Cloning and characterization of the mouse Fgf-1 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                     Score 968; DB 1; Length 155;
                                                                                                                                                                                                                                                                                                               not compared with conceptual translation
                                                                                                                                                                                                                                                                                                                                                                                                                                                 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Madiai, F.; Hackshaw, K.V.; Chiu, I.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                 Pred. No. 4.47e-195;
3; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      acidic fibroblast growth factor aFGF; FGF-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #type complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      embryogenesis.
s MUID:90201563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #cross-references MUID:97128312
#accession JC5231
                                                                                                                                                                                                                                                                                 cross-references MUID:90270291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
77.9%;
Best Local Similarity 96.3%;
Matches 131; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               D37360; JC5231
                157 YGOKAILFLPLPVSSD 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   157 YGQKAILFLPLPVSSD 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 16-Jul-1999
140 YGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  140 YGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                               ##molecule_type DNA
                                                                                                                                                                                          A60721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        D37360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A37360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                D37360
                                                                                                                                                                                                                                                                                                A60721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             G.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    teross-references
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ETTE
ERNATE_NAMES
ANISM
DATE
                                                                                                                                                                                                                                                                                                                                             ##residues
                                                                                                                  ALTERNATE_NAMES ORGANISM
                                                                                                                                                                                                                                                                                                                                                           CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##status
                                                                                                                                                                                                                                                                                                               ##status
                                                                                                                                                                                                                                                                                                accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #accession
                                                                                                                                                                                                                                     #journal
#title
                                                                      ~
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ournal
                                                                                                                                                                                                          #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #authors
                                                                                                                                                                           ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         fournal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                        KEYWORDS
SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
ENTRY
                                                                      RESULT
셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
```

셤 ò ò

ç

```
Goodrich, S.P.; Yan, G.C.; Bahrenburg, K.; Mansson, P.E.
Nucleic Acids Res. (1989) 17:2867
The nucleotide sequence of rat heparin binding growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##cross-references EMBL:X14232; NID:956351; PIDN:CAA32448.1; PID:956352
FICATION #superfamily fibroblast growth factor
DS growth factor; heparin binding
Y #length 155 #molecular weight 17417 #checksum 9341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JH0476 *type fragment acidic fibroblast growth factor - pig (fragment) *formal_name Sus scrofa domestica #common_name domestic pig 31-Mar-1992 #sequence_revision 31-Mar-1992 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           81 AMDTEGLLYGSQTPNEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  81 AMDTEGLLYGSQTPNEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98 AMDIDGLLYGSQIPNEECLFIERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRIHY 157
##restques
##cross-references GB:U36456
This protein is an inducer of neovascularization in anglogenic
disease including atherosclerosis, cancer and inflammatory
                                                                                                                                                                                                                                                                                                                                                                  21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 38 ANYKKPKLLYCSNGGHPLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S04147 #type complete acidic fibroblast growth factor 1 - rat heparin-binding growth factor 1 heparin-binding growth factor 1 #formal_name Rattus norvegicus #common_name Norway rat 28-Feb-1990 #sequence_revision 28-Feb-1990 #text_change
                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                      Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 155;
                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                          57/1; 91/3
#superfamily fibroblast growth factor
#length 155 #molecular-weight 17417
                                                                                                                                                                                                                                                              Score 966; DB 2; Lk
Pred. No. 1.34e-194;
3; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 966; DB 2; L4
Pred. No. 1.34e-194;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1-155 ##label GOO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                i (HBGF-1).
#cross-references MUID:89240051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity 96.3%;
Matches 130; Conservative
                                                                                                                                                                                                                                                                 Ouery Match
Best Local Similarity 96.3%;
Matches 130; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           158 GOKAILFLPLPVSSD 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GOKAILFLPLPVSSD 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ENTRY
TITLE
ORGANISM
DATE
```

```
##residues
                                                                                                                                                                                                                        #submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #accession
                                                                                                                                                                                                                                             #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #authors
#journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #journal
#title
                    #journal
#title
                                                                                                                                                                                                        #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #authors
                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Halley, C.; Courtois, Y.; Laurent, M.
Nucleic Acids Res. (1988) 16:10913
Nucleotide sequence of bovine acidic fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       J.M.; Courtois, Y.; Laurent, M.
Biochem. Biophys. Res. Commun. (1992) 184:945-952
Heterogeneity of 3' untranslated region of bovine acidic FGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Alterio, J.; Halley, C.; Brou, C.; Soussi, T.; Courtois, Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GKBOA #type complete
acidic fibroblast growth factor precursor - bovine
acidic fibroblast growth factor II; heparin-binding growth
factor I; prostatropin
#formal_name Bos primigenius taurus #common_name cattle
13-Aug-1986 #sequence_revision 03-Feb-1994 #text_change
                                                                                                                                                                                                 ##residues 1-152 ##label SCH ##cross-references BMBL:X6317; NID:g1873; PIDN:CAA42869.1; PID:g1874 ##experimental_source heart the hydrophobic core residues are packed around the ##note
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JH0613; S02102; S02661; S22065; B24663; A94281; S03953;
A91010; A24477; B25043; C25043; A25043; A24539; A60884;
A37892; B37892; A61198; I46024; A34477; A01385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LAMDTSGLLYGSQTPSEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGPRTH 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##molecule_type mRNA
##residues 1-155 ##label HAL
##cross-references EMBL:X13221; NID:q347; PIDN:CAA31610.1; PID:g348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20 PGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQY 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Renaud, F.; Desset, S.; Bugra, K.; Halley, C.; Philippe,
                                                                                                                                                                                                                                                                                   internal symmetry axis
protein belongs to the fibroblast growth factor family.
#superfamily fibroblast growth factor
growth factor; heparin binding
                                                    #authors Schmidt, M.; Sharma, H.S.; Schott, R.J.; Schaper, W. Biochem. Blophys. Res. Commun. (1991) 180:853-859 #title Amplification and sequencing of mRNA encoding acidic fibroblast growth factor (aFGF) from porcine heart.
                                                                                                                                                                                                                                                                                                                                                                                                     #binding_site heparin (Lys) #status predicted
#length 152 #checksum 1124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ;;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 152;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                   #region nuclear location signal/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 954; DB 2; L
Pred. No. 9.79e-192;
3; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               58-155 ##label REN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #cross-references MUID:89083506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      transcripts. **cross-references MUID:92246990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 76.8%;
Best Local Similarity 96.2%;
Matches 128; Conservative
16-Jul-1999
JH0476; S20072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       18-Jun-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    157 YGQKAILFLPLPV 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           140 YGQKAILFLPLPV 152
                                                                                                                                                                             ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S02102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDNA
                                                                                                                                                              JH0476
                                                                                                                                                                                                                                                                                                   This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                      CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tauthors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #journal
                  ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                     EATURE
22-28
133
SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                             KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                     COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
ENTRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
```

```
#authors Abraham, J.A.; Mergia, A.; Whang, J.L.; Tumolo, A.; Friedman, J.; Hjerrild, K.A.; Gospodarowicz, D.; Fiddes, J.C.
#journal Science (1986) 233:545-548
#title Nucleotide sequence of a bovine clone encoding the anglogenic protein, basic fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gimenez-Gallego, G.; Rodkey, J.; Bennett, C.; Rios-Candelore, M.; DiSalvo, J.; Thomas, K. Science (1985) 230:1385-1388 Brain-derived acidic fibroblast growth factor: complete amino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             growth factor: complete amino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #authors Quinkler, W.; Maasberg, M.; Bernotat-Danielowski, S.; Luethe,
N.; Sharma, H.S.; Schaper, W.
#journal Eur. J. Blochem. (1989) 181:67-73
#title Isolation of heparin-binding growth factors from bovine,
porcine and canine hearts.
#cross-references MUID:89231704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #authors Crabb, J.W.; Armes, L.G.; Carr, S.A.; Johnson, C.M.; Roberts,
G.D.; Bordoll, R.S.; McKeehan, W.L.
#journal Biochemistry (1986) 25:4988-4993
#title Complete primary structure of prostatropin, a prostate
epithelial cell growth factor.
#cross-references MUID:87026586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #journal Proc. Natl. Acad. Sci. U.S.A. (1986) 83:7216-7220
#title Structural evidence that endothelial cell growth factor beta is the precursor of both endothelial cell growth factor alpha and acidic fibroblast growth factor.
#cross-references MUID:87016918
                             #fitle Characterization of a bovine acidic FGF cDNA clone and its expression in brain and retina. #cross-references MUID:89078619
                                                                                                                                                                                                                     ##cross-references EMBL:X14032; NID:g322; PIDN:CAA32192.1; PID:g323
NCE S22065
                                                                                                                                                                                                                                                                                                                                                                             ##residues 1-18 ##label PHI
##cross-references EMBL:X66446; NID:9411; PIDN:CAA47063.1; PID:9412
NCE A94290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bohlen, P.; Esch, F.; Baird, A.; Gospodarowicz, D. EMBO J. (1985) 4:1951-1956
Acidic fibroblast growth factor (FGF) from bovine brain:
amino-terminal sequence and comparison with basic FWF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Burgess, W.H.; Mehlman, T.; Marshak, D.R.; Fraser, B.A.;
                                                                                                                                                                                                                                                                         Philippe, J.M. submitted to the EMBL Data Library, May 1992 $222065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##molecule_type protein
##residues : 16-30,'X',32-34,'X',36-44 ##label BOH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             acid sequence and homologies.
#cross-references MUID:86070224
#accession A94281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2,'GE',5-155 ##label CRA
FEBS Lett. (1988) 242:41-46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##molecule_type protein
##molecule_type protein
16-155 ##label GIM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type mRNA
##residues 62-102 ##label ABR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type protein
##residues 16-45 ##label QUI
ENCE A91010
                                                                                                                                                        ##molecule_type mRNA
##residues 1-155 ##label ALT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          toross-references MUID:86055750 Accession A91010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A24477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A94281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S03953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A94127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S03953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A24477
```

```
growth factor
                                                                                                                        A34477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        502639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S02639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##residues
CLASSIFICATION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ALTERNATE_NAMES
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##status
                                                                                                                        #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                        COMMENT
                                                                                                                                                                                                                                                                                                                                                             COMMENT
                                                                                                                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #duthors Kuo, M.D.; Huang, S.S.; Huang, J.S.
#journal J. Biol. Chem. (1990) 265:16455-16463
#title Acidic fibroblast growth factor receptor purified from bovine
#cross-references MUID:90375514
#accession A37892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ţ,
                                                                                                                                    16-155 ##label BU2
this form was designated acidic fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DiSalvo, J.
J. Protein Chem. (1987) 6:163-171
Primary structure and mitogenic and angiogenic activities of brain-derived acidic fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##molecule_type_protein
##residues_22-30,'x',32-38 ##label KU2
##residues this form was designated brain-derived growth factor A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Philippe, J.M.; Renaud, F.; Desset, S.; Laurent, M.; Mallet, J.; Courtois, Y.; Edwards, J.B.
Biochem. Blophys. Res. Commun. (1992) 188:843-850
Cloning of two different 5' untranslated exons of bovine acidic fibroblast growth factor by the single strand ligation to single-stranded cDNA methodology.
                                                                                                                                                                                           ##molecule_type protein
##residues 22-155 ##label BU3
##note this form was designated alpha endothelial cell growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Brain Res. Dev. Brain Res. (1991) 63:13-19
Class 1 heparin binding growth factor promotes the
differentiation but not the survival of ciliary neurones
                                                               growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a form
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A61198
Hill, C.E.; Belford, D.A.; Godovac-Zimmermann, J.; Hendry,
I.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11-26;28-50;53-110,'H',112,'NTY';134-155 ##label HIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##cross-references EMBL:X66446; NID:g411; PIDN:CAA47063.1; PID:g412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sasaki, H.; Hoshi, H.; Hong, Y.M.; Suzuki, T.; Kato, T.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Thomas, K.A.; Gimenez-Gallego, G.; Rios-Candelore, M.;
                                                             endothelial cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             of
B
                                                                                                                                                                                                                                                                                               #authors Strydom, D.J.; Harper, J.W.; Lobb, R.R.
#journal Blochemistry (1986) 25:945-951
#title Amino acid sequence of bovine brain derived class heparin binding growth factor.
#cross-references MUID:86187766
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##molecule_type protein
##residues 62-76,'X',78-86 ##label KUO
##note this sequence is an amino-terminal fragment
designated as brain-derived growth factor
                ##molecule_type protein
##residues 2-155 ##label BUR
##note this form was designated beta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##molecule_type protein
##residues 16-155 ##label THO
                                                                                                                                                                                                                                                                                                                                                                                                                                    16-155 ##label STR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1-18 ##label PH2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #cross-references MUID:93075172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #cross-references MUID:92164087
                                                                                                                                                                                                                                                           factor
                                                                               factor
                                                                                                                                                                                                                                                                                                                                                                                                          ##molecule_type protein
                                                                                                                    ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type mRNA
                                                                                                  C25043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CVIV
    B25043
                                                                                                                                                                           A25043
                                                                                                                                                                                                                                                                                                                                                                                             A24539
                                                                                                                                                                                                                                                                                                                                                                                                                                                      A60884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A61198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  146024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               146024
                                                                                                                                      ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                      ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #accession
                                                                                                                                                                             #accession
#accession
                                                                                                  #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           *accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #accession
                                                                                                                                                             ##note
                                                                                                                                                                                                                                                                                               #authors
#journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  *ERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #title
                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #authors Risau, W.; Gautschi-Sova, P.; Boehlen, P. #journal EMBO J. (1988) 7:959-962 #title Endothelial cell growth factors in embryonic and adult chick brain are related to human acidic fibrohlast growth factor #cross-references MUID:88296438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##residues
##cross-references GB:S63263; NID:9234372; PIDN:AAB19629.1; PID:9234373
Sasaki, H.; Saito, M.; Youki, H.; Karube, K.; Konno, S.; Onodera, M.; Saito, T.; Aoyagi, S. J. Biol. Chem. (1989) 264:17615-17612.
Purification of acidic fibroblast growth factor from bovine heart and its localization in the cardiac myocytes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  81 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKHWFVGLKKNGRSKLGPRTHF 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          98 AMDTDGLLXGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 38 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         21 GNYKKPFLLYCSNGGYFLRILPDGTVDGTKDRSDQHIQLQLCAESIGEVYIKSTETGQFL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   acidic fibroblast growth factor - chicken
endothelial cell growth factor
#formal_name Gallus gallus #common_name chicker.
03-Mar-1993 #sequence_revision 03-Mar-1993 #tuxt_change
16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Differentiating and mature neurons express the acid fibroblast growth factor gene during chick neural
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 22-30,'X',32-44,'X',46-48 ##label #superfamily fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 917; DB 1; Le
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Development (1991) 111:1143-1154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #type complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Schnuerch, H.; Risau, W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Note: remainder of annotations omitted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #cross-references MUID:91347925
#accession A60130
                                                                                                                  #cross-references MUID:90008933
                                                                                                                                                                preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 73.8%;
Best Local Similarity 91.9%;
Matches 124; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A60130; S02639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   development
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       141 GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##molecule_type mRNA
```

```
#cross-references MUID:93246053
#accession A48834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##residues
                                                                                                                                                                                                                                                                                     ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ALTERNATE_NAMES
                                                                                                                                                                                                                                                        ##status
                                    ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #accession
                                                                                                                                                                                                                                         #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #authors
                                                                                                                                    REFERENCE
#authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         107-110
SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                        원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Biochem. Biophys. Res. Commun. (1998) 246:182-191
Primary structure of ovine fibroblast growth factor-1 deduced
by protein and cDNA analysis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Borja, A.Z.; Meijers, C.; Zeller, R.
Dev. Biol. (1993) 157:110-118
Expression of alternatively spliced bFGF first coding exons
and antisense mRNAs during chicken embryogenesis.
                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sidues 1-155 ##label GRI
This protein is a potent mitogenic factor for NIH 3T3 fibroblasts
in the absence of heparin.
IION #superfamily fibroblast growth factor
# superfamily fibroblast weight 17557 #checksum 8890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Grieb, T.W.; Ring, M.; Brown, E.; Palmer, C.; Belle, N.;
Donjerkovic, D.; Chang, H.; Yun, J.; Subramanian, R.;
Forozan, F.; Guo, Y.; Vertes, A.; Winkles, J.A.; Burgess,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          81 AMDTNGLLYGSQTPSEECLFLERLEENHYNTYISKKHAEKNWFIGLKKNGSSKLGPRTHF 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98 AMDIDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 157
                                                                                                                                                                     81 AMDTNGLLYGSQLPGEECLFLERLEENHYNTYISKKHADKNWFVGLKKNGNSKLGPRTHY 140
                                                                                                                                                                                        21 GNYKKPKLLYCSNGGYFLRILPDGRVDGTKDRSDQHIQLQLYAESIGEVYIKSTETGQFL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21 GNYKKPKLLYCSNGGHFLRILPDGKVDGTRDRSDQHIQLQLSAEDVGEVYIKSTASGQYL 80
                                                                                                                     38 ANYKRPKLLYCSNGGHFLRILPDGTVDGTRDSDQHIQLQLSAESVGEVYIKSTETGQYL 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A48834 *type complete
basic fibroblast growth factor - chicken
*formal_name Gallus acommon_name chicken
01-bec-1993 *sequence_revision 18-Nov-1994 *text_change
                                                                                                                                                                                                                                                                                                                                                                                    #formal_name Ovis sp. #common_name sheep
17-Jun-1998 #sequence_revision 10-Jul-1998 #text_change
07-May-1999
   #molecular-weight 17322 #checksum 7617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ó
                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 906; DB 2; Length 155;
Pred. No. 2.67e-180;
8; Mismatches 5; Indels
                                  Length 155;
                                                                     7; Indels
                                  Score 916; DB 2; I
Pred. No. 1.11e-182;
6; Mismatches 7;
                                                                                                                                                                                                                                                                                                                                      W0055 #type complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #cross-references MUID:98262939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     72.9%;
ilarity 90.4%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A48834; S23636
                                    73.8%;
                                                   Best Local Similarity 90.4%;
Matches 122; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          141 GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           158 GOKAILFLPLPVSSD 172
                                                                                                                                                                                                                                                        GOKALLFLPLPVSSD 172
                                                                                                                                                                                                                                       141 GOKAILFLPLPVSAD 155
      #length 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #accession JW0055
##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local Similarity
                                                                                                                                                                                                                                                                                                                                        JW0055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##residues
                                                                                                                                                                                                                                                                                                                                                                       ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #journal
#title
                                                                                                                                                                                                                                                                                                                      œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                      86
                                                                                                                                                                                                                                                                      158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMMENT
                                                                                                                                                                                                                                                                                                              SULT
TRY
TITLE
      SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
ENTRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ó
                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                    g
                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                        ò
                                                                                                                                      ð
```

```
Ĥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Primary structure of ovine pituitary basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                      PIDN:CAA40139.1; PID:g62856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C.J.; Fabri, L.J.; Nice,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ^{\text{the}}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              106 VSIKGVSANRFLAMKEDGRLLALKCATEECFFFERLESNNYNTYRSRKYSD--WYVALKR 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               46 LPDDGGGGAFPPGHFKDPKRLYCKNGGFFLRINPDGRVDGVREKSDPHIKLQLQAEERGV 105
                                                                                         sequence extracted from NCBI backbone (NCBIN:131000,
NCBIP:131001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3 LPEDGGSSAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGV 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 **common_name domestic sheep
10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change
10-Sep-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                           ERENCE S23636
#authors Mitrani, E.; Gruenbaum, Y.; Shohat, H.; Ziv, T.
#journal Development (1990) 109:387-393
#title Fibroblast growth factor during mesoderm induction in fants chick embryo.
#cross-references MUID:90382254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             prostatropin
#formal_name Ovis orientalis aries, Ovis ammon aries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #checksum 3560
                                                                                                                                                                                                                                                                                                                                                                                    ##Cross references EMBL.X56804; NID:962855; PIDN:CAA40139.1; PII
CLASSIFICATION #superfamily fibroblast growth factor
SUMMARY #length 189 #molecular-weight 20312 #checksum 8538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #region heparin binding #status predicted\
#region heparin binding #status predicted
#length 146 #molecular-weight 16434 #checksum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 529; DB 1; Length 146;
Pred. No. 7.50e-92;
26; Mismatches 41; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 531; DB 2; Length 189
Pred. No. 2.60e-92;
27; Mismatches 41; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##molecule_type protein
##molecule_type protein
##residues 1-146 ##label SIM
#FICATION #superfamily fibroblast growth factor
ADS growth factor; heparin binding; mitogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S00185 #type complete
basic fibroblast growth factor - sheep
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                E.C.; Rubira, M.R.; Burgess, A.W. FEBS Lett. (1987) 224:128-132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             164 TGQYKPGPKTGPGQKAILFLPMSAKS 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      146 NGSCKRGPRTHYGQKAILFLPLPVSS 171
                                                                                                                                                                                                                                                                                                                                                                  95-128 ##label MIT
                 ##molecule_type_rucleic_acid
##residues 1-189 ##label BOR
##experimental_source embryo
##note
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #cross-references MUID:88055577
#accession S00185
                                                                                                                                                                                                                                                                                                                   preliminary
preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 42.6%;
Best Local Similarity 52.7%;
Matches 77; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity 52.1%;
Matches 76; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              factor
                                                                                                                                                                                                                                                                                                                                            #molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S00185
                                                                                                                                                                                                                                                                                               $23636
```

```
This protein binds heparin more strongly than does aFGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #accession
                                                                                                                                                                                                                                                                                                                                                                                                               contents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #journal
#title
                                                                                                                                                                                                                                                                                                                   #journal
#title
                                                                                                                                                                                                                                                                         REFERENCE
#authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                              Abraham, J.A.; Mergia, A.; Whang, J.L.; Tumolo, A.; Friedman,
J.; Hjerrild, K.A.; Gospodarowicz, D.; Fiddes, J.C.
Science (1986) 233:545-548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##molecule_type mRNA
##residues 3-157 ##label ABR
##cross-references GB:M13440; NID:g163049; PIDN:AAA30518.1; PID:g163050
                                                                                                                                                                                                                                            basic fibroblast growth factor precursor - bovine (fragment) bFGF; kidney-derived growth factor; prostatropin #formal_name Bos primigenius taurus #common_name cattle 13-Aug-1986 #sequence_revision 02-Jun-1995 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Milner, P.G.; Li, Y.S.; Hoffman, R.M.; Kodner, C.M.; Siegel, N.R.; Deuel, T.F.
Biochem. Biophys. Res. Commun. (1989) 165:1096-1103
A novel 17 kD heparin-binding growth factor (HBGF-8) in bovine uterus: purification and N-terminal amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #authors Bertolini, J.; Hearn, M.T.W.
#journal Mol. Cell. Endocrinol. (1987) 51:187-199
#title isolation, characterisation and tissue localisation of an N-terminal-truncated variant of fibroblast growth factor.
#cross-references MUID:87247652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #authors Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R.
#journal Mol. Cell. Endocrinol. (1987) 49:189-194
#title Isolation and partial characterization of basic fibroblast
growth factor from bovine testis.
#cross-references MUID:87162856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Fiddes,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #journal Cold Spring Harb. Symp. Quant. Biol. (1986) 51:657-668
#title Human basic fibroblast growth factor: nucleotide sequence,
genomic organization, and expression in mammalian cells.
#cross-references WIID:87217066
63 VSIKGVCANRYLAMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKR 120
                       demonstration of a possible alternative initiator or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           this form appears to be identical to the renal form
                                                                                                                                                                                                                                                                                                                                      A01386; A60316; A22054; A24819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##residues 27-35/X',37-41 ##label UE3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##experimental_source pituitary gland
                                                                                                                                                                                                                            #type fragment
                                                                                     121 TGQYKLGPKTGPGQKAILFLPMSAKS 146
                                                                                                            146 NGSCKRGPRTHYGQKAILFLPLPVSS 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##molecule_type mRNA
##residues 3-157 ##label AB2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              splice junction
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     16-35 ##label BER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1-14 ##label MIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #cross-references MVID:90121211
#accession A33784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #cross-references MUID:86261806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type protein
##residues 27-35,'X
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sednence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A61550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A61551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A32878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A24663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A33784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A61551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##residues
                                                                                                                                                                                                                                                                         ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##note
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##note
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #journal
                                                                                                                                                                                                  11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #journal
                                                                                                                                                                                                                                                                                                                                                                                                                           #authors
                                                                                                                                                                                                                                                                                                                                                              ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                           FERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                            ENTRY
                                                                                                                                                                                                                                                   TITLE
셤
                                            ò
                                                                                     셤
                                                                                                                                  ò
```

```
#authors Baird, A.; Esch, F.; Boehlen, P.; Ling, N.; Gospodarowicz, D. Regul. Pept. (1985) 12:201-213
#title Isolation and partial characterization of an endothelial cell growth factor from the bovine kidney: homology with basic foress-reference MID:86095426
#accession A60316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gospodarowicz, D.; Baird, A.; Cheng, J.; Lui, G.M.; Esch, F.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Proc. Natl. Acad. Sci. U.S.A. (1985) 82:6507-6511
Primary structure of bovine pituitary basic fibroblast growth
factor (FGF) and comparison with the amino-terminal
sequence of bovine brain acidic FMF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #authors Bohlen, P.; Baird, A.; Esch, F.; Ling, N.; Gospodarowicz, D.
#journal Proc. Natl. Acad. Sci. U.S.A. (1984) 81:5364-5368
#title Isolation and partial molecular characterization of pituitary
#cross-references WID:84298139
#accession A22054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Esch, F.; Baird, A.; Ling, N.; Ueno, N.; Hill, F.; Denoroy, L.; Klepper, R.; Gospodarowicz, D.; Bohlen, P.; Guillemin,
#authors Ueno, N.; Baird, A.; Esch, F.; Shimasaki, S.; Ling, N.;
Guillemin, R.
#journal Regul. Pept. (1986) 16.135-145
#title Purification and partial characterization of a mitogenic factor from bovine liver: structural homology with basic fibroblast growth factor.
#cross-references MUID:87119165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The acidic and basic fibroblast growth factors are the major endothelial-cell growth factors. Both are angiogenic agents in vivo and are potent mitcogens for a variety of mesoderm-derived cell types in vitro (although bFGF is 30-100 times more potent than aFGF in stimulating the proliferation of normal diploid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #journal Endocrinology (1986) 118:82-90
#title Isolation of fibroblast growth factor from bovine adrenal
gland: physicochemical and biological characterization.
#cross-references MuID:86081530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         the amino end of this form was blocked; the peptide composition matched what was thought to be the signal
                                                                                                                                                                                                                                                                                                                                                                                                       Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R. Blochem. Blophys. Res. Commun. (1986) 138:580-588 Isolation of an amino terminal extended form of basic fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##molecule_type protein
##residues 12-25,27-35,'X',37-40 ##label GOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##experimental_source kidney
NCE
A22054
A22054
                                                                                                                                                                                                                                                                ##molecule_type protein
##residues 23-35,'x',37-42 ##label UEN
##experimental_source_liver
ENCE A24819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##experimental_source pituitary gland
NCE A60316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##experimental_source adrenal gland
NACE A01386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          12-157 ##label ESC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##molecule_type protein
##residues 12-26 ##label BOH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #cross-references MUID:86295737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #cross-references MUID:86016731
#accession A01386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bohlen, P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sequence
                                                                                                                                                                                                                                           A60310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A61094
```

```
#title
                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
  REFERENCE
                                                                                             #product basic fibroblast growth factor, uterine form
#status predicted #label MATI\
#product basic fibroblast growth factor, pituitary gamma
form #status experimental #label MATS\
#product basic fibroblast growth factor, pituitary alpha
form #status experimental #label MATS\
#product basic fibroblast growth factor, pituitary short
form #status predicted #label MATS\
#product basic fibroblast growth factor, hepatic form
#status experimental #label MATS\
#product basic fibroblast growth factor, renal form
#status experimental #label MATS\
#product basic fibroblast growth factor, renal form
#status experimental #label MATS\
#product basic fibroblast growth factor, renal form
#status experimental #label MATS\
#product basic fibroblast growth factor, renal form
#status experimental #label MATS\
#product basic fibroblast growth factor, renal form
#status experimental #label MATS\
#putifary gamma) (probably acetylated) #status
experimental
#length 157 #checksum 1115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A32398 #type complete basic fibroblast growth factor precursor, 22.5K form - human bFGF; fibroblast growth factor 2; prostatic growth factor;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##molecule_type mRNA
##residues 1-210 ##label PRA
##cross-references GB:J04513; NID:g183083; PIDN:AAA52531.1; PID:g459811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #authors Prats, H.; Kaghad, M.; Prats, A.C.; Klagsbrun, M.; Lelias, J.M.; Liauzun, P.; Chalon, P.; Tauber, J.P.; Amalric, F.; Smith, J.A.; Caput, D. Proc. Natl. Acad. Sci. U.S.A. (1989) 86:1836-1840 #title High molecular mass forms of basic fibroblast growth factor are initiated by alternative CUG codons.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1-114 ##label SHI authors translated the codon GGA for residue 47 as Ala
*superfamily fibroblast growth factor alternative splicing; anglogenesis; growth factor; heparin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #journal Growth Factors (1991) 4:277-287
#title Functional characterization of the human basic fibroblast growth factor gene promoter.
#cross-references WUID:92110035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              74 VSIKGVCANRYLAMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKR 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A32398; A61537; A26642; B32878; S00297; A54316; B54316; A33624; A25824; B24243; B24301; S42242; B55784; I52267;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           14 LPEDGGSGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLOLOAEERGV 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            prostatropin
basic fibroblast growth factor, 18K form
#formal_name Homo sapiens #common_name man
31-Jul-1989 #sequence_revision 31-Dec-1993 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 525; DB 1; Length 157;
Pred. No. 6.23e-91;
26; Mismatches 41; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Shibata, F.; Baird, A.; Florkiewicz, R.Z.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        132 TGQYKLGPKTGPGQKAILFLPMSAKS 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      146 NGSCKRGPRTHYGOKAILFLPLPVSS 171
                                                 binding; mitogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 42.3%;
larity 52.7%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #accession A61537
##molecule_type DNA
##residues 1-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     $46253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity
Matches 77; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                          29-33, 118-121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ALTERNATE_NAMES
  CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CONTAINS
ORGANISM
DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                    23-157
                                                                                                                                                                                                                                                                                                                                                                     27-157
                                                                                                                                                                                                              12-157
                                                                                                                                                                                                                                                                  16-157
                                                                             FEATURE
1-157
                                                                                                                                                          4-157
                           KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
```

```
Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Friedman, J.; Gospodarowicz, D.; Fiddes, J.C.
J.; Gospodarowicz, D.; Fiddes, J.C.
BENBO J. (1986) 5:2523-258
Human basic fibroblast growth factor: nucleotide sequence and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  L.C.; Barr, P.J.; Baird, A.
J. Cell Biol. (1989) 109:3105-3114
Differential effects of heparin, fibronectin, and laminin on
the phosphorylation of basic fibroblast growth factor by
protein kinase C and the catalytic subunit of protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Feige, J.J.; Bradley, J.D.; Fryburg, K.; Farris, J.; Cousens,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1-155 ##label AB2
the authors translated the codon GAA for residue 108 as
                                                                                                                                                                                                                                             ##cross-references GB:M27968; NID:g182562; PIDN:AAA52448.1; PID:g182563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              56-210~\text{\#label ABR} the authors translated the codon GAA for residue 108~\text{as}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #authors Shinoyama, Y.; Gotoh, M.; Ino, Y.; Sakamoto, M.; Kato, K.; #authors Shinoyama, Y.; Gotoh, M.; Ino, Y.; Sakamoto, M.; Kato, K.; Hirohashi, S.
#journal Jpn. J. Cancer Res. (1991) 82:1263-1270

#title Characterization of high-molecular-mass forms of basic fibroblast growth factor produced by hepatocellular carcinoma cells: possible involvement of basic fibroblast growth factor in hepatocarcinogenesis.
#cross-references MUID:92091228
#accession A54316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Story, M.T.; Esch, F.; Shimasaki, S.; Sasse, J.; Jacobs, S.C.; Lawson, R.K.
Blochem. Blophys. Res. Commun. (1987) 142:702-709
Amino-terminal sequence of a large form of basic fibroblast growth factor isolated from human benign prostatic hyperplastic tissue.
                                                                                                                                                                                                                                                                                                             Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Fiddes,
                                                                                                                                                                                                                                                                                                                                                                       #journal Cold Spring Harb. Symp. Quant. Biol. (1986) 51:657-668
#title Human basic fibroblast growth factor: nucleotide sequence,
genomic organization, and expression in mammalian cells.
#cross-references MUID:87217066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #accession B54310
##molecule_type protein
##rosidues 'XXX',19,'X',21-29 ##label SH2
##rosidues 'XXX',19,'X',21-29 ##label SH2
##rosidues sequence extracted from NCBI backbone (NCBIP:71594)
"#*^^*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type_protein
##residues /XX',86-88,'X',90-91,'X',93-95 ##label SH3
##experimental_source C-Li21 hepatocellular carcinoma cell line
##note B54316
poession B54316
Kurokawa, T.; Sasada, R.; Iwane, M.; Igarashi, K.
FIBS Lett. (1987) 213:189-194
Cloning and expression of cDNA encoding human basic
fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         not compared with conceptual translation
                                                                                                                                                                                ##molecule_type mRNA
##residues 56-210 ##label KUR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   57-210 ##label FEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        genomic organization.
#cross-references MUID:87053817
#accession S00297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            kınase A.
#cross-references MUID:90078343
                                                                                                                         cross-references MUID:87162468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #accession B32878
##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##molecule_type DNA
##residues 1-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A25824
                                                                                                                                                             A26642
                                                                                                                                                                                                                                                                                A90924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A33624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #accession
                                                                                                                                                                *accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #journal #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #journal
#title
      #authors
                                                                                                                                                                                                                                                                                                                    #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #authors
                                      #journa]
```

σ

```
#accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                  171-174
                                                                                                                                                                                                                                                                                                                                    65-210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                  #gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                           1 - 210
                                                                                           GENETICS
                                                                                                                                                                                                                           KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                  82-86
                                                                                                                                                                                                                                                                    FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                           SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ENTRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #journal Blochen Blophys. Res. Commun. (1992) 187:1227-1231
#title Reverse transcription with nested polymerase chain reaction shows expression of basic fibroblast growth factor transcripts in human granulosa and cumulus cells from in vitro fertilisation patients.
#cross-references WUID:93038590
                                                                                                                                Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A. Blochem. BLophys. Res. Commun. (1986) 135:541-548 Human brain-derlived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitogenic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #authors Patry, V.; Bugler, B.; Amalric, F.; Prome, J.C.; Prats, H.
#journal FEBS Lett. (1994) 349:23-28
#title Purlification and characterization of the 210-amino acid recombinant basic fibroblast growth factor form (FGF-2).
#cross-references MUID:94320639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Watson, R.; Anthony, F.; Pickett, M.; Lambden, P.; Masson, G.M.; Thomas, E.J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pantoliano, M.W.; Horlick, R.A.; Springer, B.A.; Van Dyk, D.E.; Tobery, T.; Wetmore, D.R.; Lear, J.D.; Nahapetian, A.T.; Bradley, J.D.; Sisk, W.P. Biochemistry (1994) 33:10229-10248
Multivalent ligand-receptor binding interactions in the glowth factor system produce a cooperative growth factor and heparin mechanism for receptor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sommer, A.; Brewer, M.T.; Thompson, R.C.; Moscatelli, D.; Prestex, M.; Riffkin, D.B.
Biochem. Blophys. Res. Commun. (1987) 144:543-550
A form of human basic fibroblast growth factor with an
                                                                                                                                                                                                                                                                                                                                                                             Gautschi, P.; Frater-Schroder, M.; Bohlen, P.
FEBS Lett. (1986) 204:203-207
Partial molecular characterization of endothelial cell
mitogens from human brain: acidic and basic fibroblast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##cross-references EMBL:M17599; NID:g183086; PIDN:AAA52534.1;
PID:g183087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cess.tum
##molecule_type protein
##residues 65-88,'X',90-98,'X',100 ##label GAU
                                                                                                                                                                                                                                                                                  ##molecule_type protein
##residues 65-102,'X',104-105 ##label GIM
##experimental_source brain
ENCE A91364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##status
#molecule_type mRNA
#molecule_type mRNA
#fresidues 95-182 ##label RES
##cross-references GB:S47380; NID:9256535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #experimental_source granulosa cells
S46253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         extended amino terminus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                54-210 ##label SOM
oss-reterence
cession A25824
##molecule_type protein
57-77 ##label STO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##molecule_type protein
##residues 54-71 ##label PAN
                                                                                    ##experimental_source prostate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       growth factors. cross-references MUID:86275260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              *cross-references MUID:87213238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #cross-references MUID:94347757
#accession B55784
  *cross-references MUID:87156686
                                                                                                                                                                                                                                                #cross-references MUID:86186784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     dimerization
                                                                                                                                                                                                                         activities
                                                                                                                                                                                                                                                                  B24243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         152267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S42242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            152267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #accession
                           *accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    *accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #accession
                                                                                                                                                                                                                                                                       #accession
                                                                                                                                    #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #authors
                                                                                                                                                      # journal
                                                                                                                                                                                                                                                                                                                                                                                #authors
                                                                                                                                                                                                                                                                                                                                                                                                       ournal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  # iournal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #authors
                                                                                                                                                                                title
                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
```

```
Dev. Biol. (1990) 138:454-463
Isolation of cDNAs encoding four mouse FGF family members and
characterization of their expression patterns during
                                                                                                                                                                                        *superfamily fibroblast growth factor alternative initiators; anglogenesis; growth factor; heparin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##Fesidues 1.154 ##label HEB
##cross-references GB:M30644; NID:g193296; PIDN:AAA37621.1; PID:g309239
FICATION #superfamily fibroblast growth factor
Y #length 154 #molecular-weight 17153 #checksum 2906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A37360
Hebert, J.M.; Basilico, C.; Goldfarb, M.; Haub, O.; Martin,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                67 LPEDGGSGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGV 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    71 VSIKGVCANRYLAMKEDGRLLASKCVTEECFFFERLESNNYNTYRSRKYS--SYYVALKR 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           127 VSIKGVCANRYLAMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYT--SWYVALKR 184
                                                                                                                                                                                                                                                                                   #product basic fibroblast growth factor, 22.5K form
#status predicted #label MA2\
#product basic fibroblast growth factor, 18K form
#status predicted #label MAT\
#status predicted #label MAT\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12 LPEDGGA-AFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGV 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C37360 #type complete
basic fibroblast growth factor - mouse
#formal_name Mus musculus #common_name house mouse
17-Apr.1993 #sequence_revision 17-Apr-1993 #text_change
16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #checksum 3610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      26; Mismatches 40; Indels 3;
                                                                                                                                                                                                                                                                                                                                                                                 #region heparin binding #status predicted\
#region heparin binding #status predicted
#length 210 #molecular-weight 22623 #checksum
                                                 Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 210;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                41; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 518; DB 2; Pred. No. 2.52e-89; 27; Mismatches 41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 513; DB 2;
Pred. No. 3.53e-88;
##molecule_type protein
##residues 39-53,65-88 ##label PAT
##note recombinant gene expressed in
                                                                                                                      ##cross-references GDB:119910; OMIM:134920
#map_position 4q25-4q27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    185 TGOYKLGSKTGPGOKAILFLPMSAKS 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                146 NGSCKRGPRTHYGQKAILFLPLPVSS 171
                                                                                                                                                                                                                                         binding; mitogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #cross-references MUID:90201563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type mRNA
##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 41.7%;
Best Local Similarity 52.1%;
Matches 76; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 41.3%;
Best Local Similarity 52.7%;
Matches 77; Conservative
                                                                                                GDB: FGF2;
                                                                                                                                                                    #start_codon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CLASSIFICATION
```

short-tailed opossum

```
##residues
                                                                                                                                                                                                         #description
                                                                                                                                                            #authors
#submission
                                                                                                                                                                                                                                                                          #status
                                                                                                                                                                                                                                                     #accession
                                                                                                                  ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              90
                                                                                                                                       REFERENCE
                                                 ORGANISM
    TITLE
                                                                      DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                Shimasaki, S.; Emoto, N.; Koba, A.; Mercado, M.; Shibata, F.; Cooksey, K.; Baird, A.; Ling, N. Biochem. Biophys. Res. Commun. (1988) 157:256-263 Complementary DNA cloning and sequencing of rat ovarian basic fibroblast growth factor and tissue distribution study of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ERENCE S24309
#authors El-Husseini, A.E.D.; Paterson, J.A.; Myal, Y.; Shlu, R.P.C.
#journal Biochim Blochys. Acta (1992) 1131:314-316
#title PCR detection of the rat brain basic fibroblast growth factor (bFGF) mRNA containing a unique 3' untranslated region.
#cross-references MUID:92329546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #accession A31674
##molecule_type_mRNA
##molecule_type nRNA
##residues 1-154 ##label SHI
##cross_references GB:M22427; NID:g204285; PIDN:AAA41210.1; PID:g204286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Tresidues 35-154 ##label ELH
foross-references EMBL:X61697; NID:956143; PIDN:CAA43863.1; PID:956144
ICATION #superfamily fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #accession S00876
##molecule_type mRNA
##molecule_1154 ##label KUR
##residues 1-154 ##label KUR
##cross-references EMBL:X07285; NID:956203; PIDN:CAA30265.1; PID:956204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #domain signal sequence #status predicted #label SIGN
#product basic fibroblast growth factor #status
predicted #label MAT
#length 154 #molecular-weight 17139 #checksum 3026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Kurokawa, T.; Seno, M.; Igarashi, K.
Nucleic Acids Res. (1988) 16:5201
Nucleotide sequence of rat basic fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QAEERGVVSIKGVCANRYLAMKEDGRLLASKCVTEECFFFERLESNNYNTYRSRKYS--S 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                19 GVLVGMVVPSPAGARANGSANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQL 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GSITSLPALPEDGGGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQL 63
                                                                                                                                                                                                           21-May-1990 #sequence_revision 21-May-1990 #text_change 16-Jul-1999 #text_change A31674; S00876; S24309 A31674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                         formal_name Rattus norvegicus #common_name Norway rat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        46; Indels
                                                                                                                       A31674 #type complete
basic fibroblast growth factor precursor
bFGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              **Scatus preliminary; translation not shown ##molecule_type mRNA ##pesion.c.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 513; DB 2; 1
Pred. No. 3.53e-88;
29; Mismatches 46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WYVALKRIGOYKLGSKIGPGOKAILFLPMSAKS 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |:|:||: | | |::| ||||||||:: |
139 WFVGLKKNGSCKRGPRTHYGQKAILFLPLPVSS 171
129 TGQYKLGSKTGPGQKAILFLPMSAKS 154
                         146 NGSCKRGPRTHYGQKAILFLPLPVSS 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                          #cross-references MUID:89061721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #cross-references MUID:88262516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 41.3%;
Best Local Similarity 49.7%;
Matches 76; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                       its mRNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##residues
                                                                                                                                                                                 ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #authors
                                                                                                                                                                                                                                                                                                                    #authors
                                                                                                                                                                                                                                                                                                                                                                   #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #journal
                                                                                                                  14
                                                                                                                                                                                                                                                                        ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    122
                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                           #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     10-154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SUMMARY
                                                                                                                  RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
  a
                                              ò
```

#type fragment

S31622

15

RESULT ENTRY , ;

```
1;
                                                                                                                                                                    Kusewitt, D.F.; Sabourin, C.L.K.; Budge, C.L.; Ley, R.D. submitted to the EMBL Data Library, September 1992 characterization of CDNA encoding basic fibroblast growth factor of the marsuplal Monodelphis domestica.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     85 GVCANRYLAMKEDGRLLALKYVTEECFFFERLESNNYNTYRSRKYS--NWYVALKRTGQY 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SETGQYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSC 149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           25 GGGGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGIREKSDPNIKLQLQAEERGVVSIK 84
            (Monodelphis domestica) (fragment)
#formal_name Monodelphis domestica
20-Feb-1995 #sequence_revision 20-Feb-1995 #text_change
12-Apr-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 164;
                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 500; DB 2; Length low
Pred. No. 3.35e-85;
                                                                                                                                                                                                                                                                                                                                                             ##cross-references EMBL:215154
CLASSIFICATION #superfamily fibroblast growth factor
SUMMARY #1ength 164 #checksum 5156
growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Search completed: Tue Aug 29 16:09:29 2000 Job time : 17 secs.
                                                                                                                                                                                                                                                                                                                                       1-164 ##label KUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 143 KLGSKTGPGQKAILFLPMSAKS 164
                                                                                                                                                                                                                                                                                          preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 40.3%;
Best Local Similarity 52.8%;
Matches 75; Conservative
                                                                                                                                                                                                                                                                                                                   ##molecule_type DNA
                                                                                                                                                                                                                                                                   531622
```

-		
******	(TM)	******
******	'=====================================	********
*******		********
*****		********
*******		*******
***************************************		***************************************
*******		*******
*****	1======================================	*****
*		*

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

protein - protein database search, using Smith-Waterman algorithm Tue Aug 29 16:06:59 2000; MasPar time 7.03 Seconds 757.906 Million cell updates/sec MPsrch\_pp . o

gbular output not generated?

Description: Perfect Score: Sequence: Title:

Scoring table:

PAM 150 Gap 11

85661 seqs, 30989116 regidues Searched:

Minimum Match 0% Listing first 45 summaries Post-processing:

swiss-prot38 1:swissprot Database:

Mean 44.068; Variance 67.544; scale 0.652 Statistics:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

sult		* Ouerv						
No.	Score	Match 1	Length DB	DB	ΩI	Description		Pred. No.
_ _	985	79.3	155	-	FGF1_HUMAN	HEPARIN-BINDING G	GROWTH	4.56e-226
7	896	77.9	155	Н	FGF1_MESAU	HEPARIN-BINDING G	GROWTH	1.85e-221
٣	996	77.8	155	Н	FGF1_MOUSE	HEPARIN-BINDING G	SROWTH	6.43e-221
4	954	76.8	152	Н	FGF1_PIG	HEPARIN-BINDING G	SROWTH	1.14e-217
5	917	73.8	155	Н	FGF1_BOVIN	HEPARIN-BINDING G	SROWTH	1.16e-207
9	916	73.8	155	Н	FGF1_CHICK	HEPARIN-BINDING G	SROWTH	2.17e-207
7	531	42.8	158	Н	FGF2_CHICK	HEPARIN-BINDING G	SROWTH	7.37e-105
8	529	42.6	155	Н	FGF2_SHEEP	HEPARIN-BINDING G	SROWTH	2.45e-104
6	.525	42.3	155	-	FGF2_BOVIN	HEPARIN-BINDING G	SROWTH	2.70e-103
10	518	41.7	155	1	FGF2_HUMAN	HEPARIN-BINDING G	3ROWTH	1.79e-101
11	513	41.3	154	Н	FGF2_MOUSE	HEPARIN-BINDING G	SROWTH	3.58e-100
12	513	41.3	154		FGF2_RAT	HEPARIN-BINDING G	GROWTH	3.58e-100
13	200	40.3	156		FGF2_MONDO	HEPARIN-BINDING GI	SROWTH	8.48e-97
14	494	39.8	155	Н	FGF2_XENLA	HEPARIN-BINDING G	SROWTH	3.05e-95
15	475	38.2	137	Н	FGF2_RABIT	HEPARIN-BINDING G	SROWTH	2.49e-90
16	360	29.0	209	٦	FGF9_XENLA	GLIA-ACTIVATING F	FACTOR	4.50e-61
17	350	28.2	208	-	FGF9_RAT	GLIA-ACTIVATING FA	FACTOR	1.41e-58
18	350	28.2	208	Н	FGF9_HUMAN	GLIA-ACTIVATING F	FACTOR	1.41e-58
19	350	28.2	208	7	FGF9_MOUSE	GLIA-ACTIVATING F	FACTOR	1.41e-58
20	329	26.5	207	Н	FGFG_HUMAN	FIBROBLAST GROWTH	FACT	2.28e-53
21	324	26.1	207	-	FGFG_RAT	FIBROBLAST GROWTH		3.90e-52
22	302	24.3	194	Н	FGF7_SHEEP	KERATINOCYTE GROWTH	TH FA	9.58e-47
.53	299	24.1	194	Ч	FGF7_HUMAN	KERATINOCYTE GROWTH	TH FA	5.15e-46

										•											
4.83e-45	2.40e-43	1.07e-40	1.07e-40	1.86e-40	3.24e-40	5.62e-40	5.62e-40	5.62e-40	9.76e-40	9.76e-40	1.69e-39	2.94e-39	8.83e-39	4.59e-38	2.38e-37	6.31e-36	1.09e-35	1.88e-35	5.57e-35	8.38e-34	8.38e-34
'H FA	FACT	H FA	FACT																		
E GROWI	GROWTH	E GROWI	GROWTH																		
KERATINOCYTE GROWTH	FIBROBLAST	KERATINOCYTE GROWTH FA	FIBROBLAST																		
FGF7_MOUSE	FGFA_XENLA	FGFA_HUMAN	FGFA_RAT	FGF4_CHICK	FGFB_XENLA	FGFE_MOUSE	FGF5_MOUSE	FGF5_RAT	FGFA_MOUSE	FGFE_HUMAN	FGF4_BOVIN	FGF7_RAT	FGF5_HUMAN	FGF3_BRARE	FGFB_HUMAN	FGFB_MOUSE	FGFC_HUMAN	FGF4_HUMAN	FGF6_MOUSE	FGF6_HUMAN	FGFD_MOUSE
ч	Н	Н	_	-	Н	-	-	н	П	-	_	٦	-	П	Н	7	Ч	П	Н	-	ч
194	187	208	215	194	192	247	264	566	209	247	206	194	268	256	225	225	243	206	208	208	245
23:8	23.2	22.3	22.3	22.2	22.1	22.1	22.1	22.1	22.0	22.0	21.9	21.8	21.7	21.4	21.2	20.7	20.6	20.5	20.4	20.0	20.0
295	288	277	277	276	275	274	274	274	273	273	272	271	269	266	263	257	256	255	253	248	248
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	36	40	41	42	43	44	45
			•																		

#### ALIGNMENTS

```
D-structure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MOD_RES
BINDING
BINDING
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL;
                                   [16]
   H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gautschi P., Frater-Schroeder M., Boehlen P.;
"Partial molecular characterization of endothelial cell mitogens from
human brain: acidic and basic fibroblast growth factors.";
FEBS Lett. 204:203-207(1986).
       Wang W.P., Quick D., Balcerzak S.P., Needleman S.W., Chiu I.M.; "Cloning and sequence analysis of the human acidic fibroblast growth factor gene and its preservation in leukemia patients."; Oncogene 6:1521-1529(1991).
                                                                                                                                                                                                                                                                                                                                              MEDLINE; 86296647.

Harper J.W., Strydom D.J., Lobb R.R.;

"Human class I heparin-binding growth factor: structure and homology
to bovine acidic brain fibroblast growth factor.";

Biochemistry 25:4097-4103(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Blaber M., Disalvo J., Thomas K.A.;
"X-ray crystal structure of human acidic fibroblast growth factor.";
Biochemistry 35:2086-2094(1996).
                                                                                                                                                                                Zhao X.M., Yeoh T.K., Hiebert M., Frist W.H., Miller G.G.; "The expression of acidic fibroblast growth factor (heparin-binding growth factor-1) and cytokine genes in human cardiac allografts and
                                                                                                             "An acidic fibroblast growth factor protein generated by alternate splicing acts like an antagonist."; J. Exp. Med. 175:1073-1080(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gautschi-Sova P., Mueller T., Boehlen P.; "Amino acid sequence of human acidic fibroblast growth factor."; Biochem. Biophys. Res. Commun. 140:874-880(1986).
                                                                                                                                                                                                                                                              MEDLINE; 90365758.
Crumley G., Dionne C.A., Jaye M.;
The gene for human acidic fibroblast growth factor encodes two upstream exons alternatively spliced to the first coding exon.";
Biochem. Biophys. Res. Commun. 171:7-13(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     factors:
                                                                                                                                                                                                                                                                                                                                                                                                                                      Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.; "The complete amino acid sequence of human brain-derived acidic fibroblast growth factor." Biochem. Biophys. Res. Commun. 138:611-617(1986).
                                                                                    Li Y.L., Kha H., Golden J.A., Migchielsen A.A.J., Goetzl E.J.,
Turck E.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.;
"Human brain-derived acidic and basic fibroblast growth factor
amino terminal sequences and specific mitogenic activities.";
Biochem. Biophys. Res. Commun. 135:541-548(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE; 94358885.
Pineda-Lucena A., Jimenez M.A., Nieto J.L., Santoro J., Rico
Gimenez-Gallego G.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CRYSTALLOGRAPHY (2.0 ANGSTROMS). 
IE; 96194129.
                                                                                                                                                                                                                                Fransplantation 56:1177-1182(1993).
                                                                                                                                                            SEQUENCE OF 1-154 FROM N.A. MEDLINE; 94069734.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRUCTURE BY NMR OF 24-155.
                                                                                                                                                                                                                                           [8]
SEQUENCE OF 1-40 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE OF 16-155.
                                                                                                                                                                                                                                                                                                                                   SEQUENCE OF 16-155.
                                                      [6]
SEQUENCE FROM N.A.
MEDLINE; 92202857.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OF 16-49.
86275260.
                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE OF 16-155.
                                                                                                                                                                                                                                                                                                                                                                                                                              86295741.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          87048871.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             86186784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE OF
MEDLINE; 861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE OF
MEDLINE; 862
                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE;
                                                                                                                                                                                                                     cells.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               X-RAY
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                    Lozano R.M., Jimenez M., Santoro J., Rico M., Gimenez-Gallego G.;
"Solution structure of acidic fibroblast growth factor bound to 1,3,
"Solution structure of acidic fibroblast growth factor bound to 1,3,
c acidion of suranias and suradistas.";
J. Mol. Biol. 281:899-915(1998).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIGGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE ILSSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PFAM: PF00167; FGF; 1.
PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFFGF.
PROSTIE; PR00247; HBGFFGF.
Growth factor; Mitogen; Vascularization; Heparin-binding; Acetylation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -!- SUBUNIT: MONOMER.
-!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
THAN DOES BFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                 Pineda-Lucena A., Jimenez M.A., Lozano R.M., Nieto J.L., Santoro J., Rico M., Gimenez-Gallego G.; Three-dimensional structure of acidic fibroblast growth factor in
"1H-NMR assignment and solution structure of human acidic fibroblast growth factor activated by inositol hexasulfate."; J. Mol. Biol. 242:81-98(1994).
                                                                                                                                                                                                                                                                             to a heparin functional analog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
F586E8BFB09F1580 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HEPARIN-BINDING GROWTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACETYLATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; AAAS2638.1; JOINED.
; AAB29057.1; -.
CAA46661.1; -.
A2355.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; X51943; CAA35205.1; --
EMBL; X51943; CAA35206.1; --
EMBL; M30492; AAA52446.1; --
EMBL; M30490; AAA52446.1; JOINED.
EMBL; M30491; AAA52446.1; JOINED.
                                                                                                                                                                                                                                                                          solution: effects of binding to J. Mol. Biol. 264:162-178(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ĭ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   155
155
2
2
2
116
116 M.
                                                                                                                                                                                                                                                                                                                                                                STRUCTURE BY NMR OF 25-155.
                                                                                                                             STRUCTURE BY NMR OF 24-155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            M60515; AAA51672.1;
M60516; AAA51673.1;
M23087; AAA52638.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PIR; A24820; A24820.
PIR; A26386; A26386.
PIR; A33665; A33665.
PIR; S18217; S18217.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PIR; A23553; A23553.
PIR; A24243; A24243.
PIR; A24301; A24301.
PIR; A24662; A24662.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1RML; 11-NOV-98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1AXM; 22-APR-98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1.
16
2
24
113
155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE; 98387896.
                                                                                                                                                         MEDLINE; 97107535.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        M23086;
```

```
PIR;
                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                              Hall J.A., Harris M.A., Malark M., Mansson P.E., Zhou H., Harris S.E.; "Characterization of the hamster DDT-1 cell argr/HGBF-I gene and cDNA and its modulation by steroids.";
J. Cell. Blochem. 43:17-26(1990).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                     -i- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY THAN DOES BRGF.

THAN DOES BRGF.

PINIMALY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
PIN: A60721; A60721.
HSSP; P05230; ZAXM.
PRINTS; P05230; ZAXM.
PRINTS; PR00263; ILIHBGF.
PRINTS; PR00263; HBGFFGF.
                                                                             LAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTH 139
                                                                                       01-FEB-1994 (Rel. 28, Created)
01-FEB-1994 (Rel. 28, Last sequence update)
15-UTL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LAMDIDGLEYGSOTPNEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGPRTH 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         79
                                                           96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20 PGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQY 79
                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                       20 PGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQY
                                                 Mesocricetus auratus (Golden hamster).
Eukaryota, Metazoa, Chordata, Craniata; Vertebrata, Euteleostomi;
Mammalia, Eutheria, Rodentia, Sciurognathi, Muridae, Cricetinae,
                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BY SIMILARITY.
HEPARIN BINDING GROWTH FACTOR
HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
41E5EC760E412CC5 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                77.9%; Score 968; DB 1; Length 155; Larity 96.3%; Pred. No. 1.85e-221; Conservative 3; Mismatches 2; Indels
 Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                   Indels
                  0;
Score 985; DB 1; L
Pred. No. 4.56e-226;
                   2; Mismatches
                                                                                                                                                                                155 AA
                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15
155
4 128
116
17403 MW; 4
79.3%;
98.5%;
                    Conservative
                                                                                                                               157 YGQKAILFLPLPVSSD 172
                                                                                                                    140 YGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       YGOKAILFLPLPVSSD 155
                                                                                                                                                                               STANDARD;
                                                                                                                                                                                                                                          GROWTH FACTOR) (AFGF).
                                                                                                                                                                                                                                                                                                                                                                                                             SUBUNIT: MONOMER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     113 1
155 AA;
         Best Local Similarity
Matches 134; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity
es 131; Conser
                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                      90270291
                                                                                                                                                                                                                                                                                          Mesocricetus
                                                                                                                                                                              FGF1_MESAU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BINDING
 Query Match
                                                                                                                                                                                                                                                                                                                       MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Loca
Matches
                                                         37
                                                                            80
                                                                                                97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 80
                                                                                                                                                                    RESULT
                                                                            8
                                                                                                                    음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S FFF S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                          ò
                                                                                                ö
                                                                                                                                       ò
                                                                                                                                                                                                             ò
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Chiu I.M.;
"Characterization of the 1B promoter of fibroblast growth factor 1
"Characterization of the 1B promoter of fibroblast growth factor 1
and its expression in the adult and developing mouse brain.";
J. Biol., Chem. 271:30263-30271(1996)
-:- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hebert J.M., Basilico C., Goldfarb M., Haub O., Martin G.R.; "Isolation of cDNAs encoding four mouse FGF family members and characterization of their expression patterns during embryogenesis."; Dev. Biol. 138.454.463(1990).
                                                                                                    01-JUL-1989 (Rel. 11, Created)
01-JUL-1989 (Rel. 11, Last sequence update)
15-JUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -!- SUBUNIT: MONOMER.
-!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                   Mus musculus (Mouse), and Rattus norvegicus (Rat).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Euth≥ria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDIINE; 89240051.
Goodrich S., Yan G.C., Bahrenburg K., Mansson P.E.;
"The nucleotide sequence of rat heparin binding growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Alam K.Y., Frostholm A., Hackshaw K.V., Evans J.E., Rotter A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE; 97128312.
Madial F., Hackshaw K.V., Chiu I.M.;
"Cloning and characterization of the mouse Fgf-1 gene.";
Gene 179:231-236(1996).
                                     Z
                                     155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Nucleic Acids Res. 17:2867-2867(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; X14232; CAA32448.1; -.
EMBL; M30641; AAA37618.1; -.
EMBL; U36459; AAG52969.1; -.
EMBL; U36457; AAG52969.1; JOINED.
EMBL; U36488; AAG52969.1; JOINED.
EMBL; U67610; AAG52907.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
SPECIES-MOUSE; STRAIN-BALB/C;
MEDLINE; 97094746.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PFAM; PF00167; FGF; 1.
PRINTS; PR00262; IL1HBGF.
                                     STANDARD;
                                                                                                                                                                                                                                                GROWTH FACTOR) (AFGF).
FGF1 OR FGF-1 OR FGFA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MGD; MGI:95515; FGF1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S04147; S04147
D37360; D37360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            90201563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HSSP; P05230;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SPECIES-MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SPECIES-MOUS
MEDLINE; 902
3
MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SPECIES-RAT
```

Page

```
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PACTOR REPORTED TO THE REPORT OF THE REPORT 
   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eur. J. Biochem. 181:67-73(1989).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
IN VIVO AND ARE POTENT MITGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-FEB-1991 (Rel. 17, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
15-JUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR I PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST GROWTH FACTOR) (ALPHA-ENDOTHELIAL CELL GROWTH FACTOR)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -!- MISCELLANBOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY THAN DOES BFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "Isolation of heparin-binding growth factors from bovine, porcine and canine hearts.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                81 AMDTEGLLYGSQTPNEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      98 AMDIDGLLYGSQIPNEECLFIERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -! - SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                               21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    38 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 97
                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Euteleostomi;
Sus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE; 92062117.
Schmidt M., Sharma H.S., Schott R.J., Schaper W.;
Amplification and sequencing of mRNA encoding acidic fibroblast
growth factor (aRGF) from porcine heart.";
Biochem. Biophys. Res. Commun. 180:853-859(1991).
                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                             HEPARIN-BINDING GROWTH FACTOR 1. HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
8890E4FPFFBA4161 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Quinkler W., Maasberg.M., Bernotat-Danielowski S., Luethe N.,
Sharma H.S., Schaper W.;
                                                                                                                                                                                                                                                                                                    DB 1; Length 155;
                                  Growth factor; Mitogen; Vascularization; Heparin-binding PROPEP 1 15
                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sus scrofa (Pig).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae;
                                                                                                                                                                                                                                                                                                                               Pred. No. 6.43e-221;
3; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                152 AA.
                                                                                                                                                                                                                                                                                                 Score 966;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                              113 116 H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; X60317; CAA42869.1; -
                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity 96.3%;
Matches 130; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              141 GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STANDARD;
                                                                                                                             155
28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE; 89231704.
PRINTS; PR00263; F
PROSITE; PS00247;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE OF 22-41.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FGF1 OR FGF-1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IISSUE-HEART
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (FRAGMENT)
                                                                                                                                                                                              BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 T 4
FGF1_PIG
                                                                                                                                    CHAIN
BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT TO THE SULT TO THE SULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DR
DR
TT
TT
SO
                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
```

```
MEDLINE; 89083506.
Halley C., Courtois Y., Laurent M.;
"Nucleotide sequence of bovine acidic fibroblast growth factor cDNA.";
Nucleic Acids Res. 16:10913-10913(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-MAR-1989 (Rel. 10, Last sequence update)
15-UUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR I PRECURSOR (HEGF-1) (ACIDIC FIBROBLAST
GROWTH FACTOR) (ARGF) (PROSTATROPIN) (ENDOTHELIAL CELL GROWTH FACTOR
BETA AND ALPHA CHAINS) (ACIDIC EXE-DERIVED GROWTH FACTOR II) (EDGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                80 LAMDTSGLLYGSQTPSEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGPRTH 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    is the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        79
                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TISSUE-RETINA;
MEDLINE: 89078619.
Alterio J., Halley C., Brou C., Soussi T., Courtois Y., Laurent M.;
"Characterization of a bowine acidic FGF cDNA clone and its
expression in brain and retina.";
FEBS Lett. 242:41-46(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE: 87016918.

Burgess W.H., Mehlman T., Marshak D.R., Fraser B.A., Maciag T.;
Burgess W.H., Mehlman T., Marshak D.R., Fraser B.A., Maciag T.;
Structural evidence that endothelial cell growth factor beta is t
precursor of both endothelial cell growth factor alpha and acidic
fibroblast growth factor.";
Proc. Natl. Acad. Sci. U.S.A. 83:7216-7220(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bos taurus (Bovine).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
                                                                                                                                                                        ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20 PGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQY
                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                   HEPARIN-BINDING GROWTH FACTOR 1.
                                                                                                                                                                                                                                                                                                                                                                       Length 152;
                                                                                         Growth factor; Mitogen; Vascularization; Heparin-binding. PROPEP 1 15
                                                                                                                                       >152 HEPARIN-BINDING GROWTH FACTC
>152 ENDOTHELIAL CELL GROWTH FACT
28 HEPARIN (POTENTIAL).
116 HEPARIN (POTENTIAL).
31 C -> S (IN REF. 2).
153 R -> Y (IN REF. 2).
154, 17103 MW, AE85380A92F9ABF4 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                       2; Indels
                                                                                                                                                                                                                                                                                                                                                                       Score 954; DB 1; L
Pred. No. 1.14e-217;
                                                                                                                                                                                                                                                                                                                                                                                                                       3; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        155 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FGF1 OR FGF-1 OR FGFA OR HBGF-1 OR AFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    23-OCT-1986 (Rel. 02, Created) 01-MAR-1989 (Rel. 10, Last seques J5-JUL-1999 (Rel. 38, Last annotations)
                                                                         ; HBGF_FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                    76.8%;
Local Similarity 96.2%;
les 128; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                157 YGQKAILFLPLPV 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       140 YGQKAILFLPLPV 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bovidae; Bovinae; Bos.
PIR; S03954; S03954.
HSSP; P05230; ZAXM.
PFAM; PF00167; FGF; 1.
PROSITE; PS00247; HBGF
                                                                                                                                              16 >1
22 >1
24 113 1
113 1
31 3
152 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE OF 2-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 2-155
MEDLINE; 87026586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TISSUE=RETINA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LT 5
FGF1_BOVIN
P03968;
                                                                                                                                                                                               BINDING
BINDING
CONFLICT
CONFLICT
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                            PROSITE;
```

ó

S

```
RESULT 6
ID FGFL_CHICK STANDARD; PRT; 155 AA
AC P19596;
DT 01-FEB-1991 (Rel. 17, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1BAR; 31-OCT-93.
1AFC; 31-OCT-93.
                             B25043.
C25043.
                                                                                         B24663; B24663
S02102; S02102
                                                                         P.24477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C25043;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                            CHAIN
CHAIN
MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                 BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TURN
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAND
HELIX
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRAND
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAND
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAND
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAND
                                                                                                                                                                                                                                                                                                                                          CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HELIX
                                                                       PIR;
PIR;
PIR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HELIX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           URN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   URN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
         DORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORRANDORR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its most by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SCIENCE 251:90-93(1991).

-!- FUNCTION: THE HEPARIN BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
-!- FUNCTION: THE HEPARIN MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE; 89231704.
Quinkler W., Maasberg M., Bernotat-Danielowski S., Luethe N.,
Sharma H.S., Schaper W.;
"Isolation of heparin-binding growth factors from bovine, porcine and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SUBUNIT: MONOMER.
MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
THAN DOES BFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                              Gimenez-Gallego G., Rodkey J., Bennett C., Rios-Candelore M.,
Disalvo J., Thomas K.;
"Brain-derived acidic fibroblast growth factor: complete amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDIINE; 91095983.
Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T., Hsu B.T., Rees D.C.; "Three-dimensional structures of acidic and basic fibroblast growth
Crabb J.W., Armes L.G., Carr S.A., Johnson C.M., Roberts G.D., Bordoli R.S., McKeehan W.L.; "Complete primary structure of prostatropin, a prostate epithelial cell growth factor.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE OF 16-56 FROM N.A.
MEDLINE; 86261806.
Abraham J.A., Mergia A., Whang J.L., Tumolo A., Friedman J.,
Hjerrild K.A., Gospodarowicz D., Fiddes J.C.;
"Nucleotide sequence of a bovine clone encoding the anglogenic protein, basic fibroblast growth factor.";
Science 233:545-548(1986).
                                                                                                                                                                                                                                                                                                            SEQUENCE OF 16-44, AND COMPOSITION.
MEDLINE; 86055750.
Bochlen P., Esch F., Baird A., Gospodarowicz D.;
Acidic fibroblast growth factor (FGF) from bovine brain:
amino-terminal sequence and comparison with basic FGF.";
EMBO J. 4:1951-1956(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 1-18 FROM N.A.
Philippe J.M., Renaud F., Desset S., Laurent M.;
Submitted (JUL-1992) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              canine hearts.";
Eur. J. Biochem. 181:67-73(1989).
                                                                                           Biochemistry 25:4988-4993(1986)
                                                                                                                                                                                                                                                                   Science 230:1385-1388(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; M13439; AAA30516.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              X13221; CAA31610.1;
X14032; CAA32192.1;
X15608; AAA30517.1;
X15646; AAA30563.1;
X17660; AAA30564.1;
X17661; AAA30564.1;
                                                                                                                                                                                                                                                   sequence and homologies."
                                                                                                                                       SEQUENCE OF 16-155.
MEDLINE; 86070224.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          M97661; AAA30
A01385; GKBOA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE OF 16-45.
```

factors.

EMBL;

EMBL; EMBL;

EMBL; EMBL; EMBL; PIR; A

```
ö
PRINTS; PR00262; ILIHBGF.
PRINTS; PR00263; HBGFFGF.
Growth factor; Mitogen; Vascularization; Heparin-binding; Acetylation;
3D-structure.
1 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       81 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKHWFVGLKKNGRSKLGPRTHF 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21 GNYKKPKLLYCSNGGYFLRILPDGTVDGTKDRSDQHIQLQLCAESIGEVYIKSTETGQFL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                       ENDOTHELIAL CELL GROWTH FACTOR BETA. HEPARIN-BINDING GROWTH FACTOR 1. ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      17493 MW; F636641F189F9BFD CRC64;
                                                                                                                                                                                                                                   HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Match 73.8%; Score 917; DB 1; L. Local Similarity 91.9%; Pred. No. 1.16e-207; es 124; Conservative 6; Mismatches 5;
                                                                                                                                                                                                                   ACETYLATION.
```

G

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                            Risau W., Gautschi-Sova P., Boehlen P.;
"Endothelial cell growth factors in embryonic and adult chick brain are related to human acidic fibroblast growth factor.";
EMBO J. 7.959-962(1988).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS OF A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
                                                                       Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SUBUNIT: MONOMER.
MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8.1 AMDINGLLYGSQLPGEECLFLERLEENHYNTYISKKHADKNWFVGLKKNGNSKLGPRIHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 157
                       FIBROBLAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             38 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21 GNYKKPKLLYCSNGGHFLRILPDGKVDGTRDRSDQHIQLQLSAEDVGEVYIKSTASGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ENDOTHELIAL CELL GROWTH FACTOR ALPHA. HEPARIN (POTENTIAL). HEPARIN (POTENTIAL).
                                                                                                                                                                                                          Schnurch H., Risau W.;
Ubifferentiating and mature neurons express the acidic fibroblast growth factor gene during chick neural development.";
Development 111:1143-1154(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .
0
15-JUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC F:
GROWTH FACTOR) (AFGF) (ALPHA-ENDOTHELIAL CELL GROWTH FACTOR)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HEPARIN-BINDING GROWTH FACTOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRINTS; PR00262; IL1HBGF.
PRINTS; PR00263; HBGFPGF.
PROSTIE; PR00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7; Indels
                                                                                                                                                                                                                                                                                                                       Martin G.R., Han J.K.;
Submitted (JUL-1995) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8EDB70545E2B4365 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 916; DB 1; L
Pred. No. 2.17e-207;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          116 HF
17322 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; S63263; AAB19629.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             , U31863; AAA80310.1; -. ; S63261; AAD13942.1; -. S02639; S02639.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  73.8%;
90.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            141 GOKAILFLPLPVSAD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HSSP; P05230; 2AXM.
PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            113 1
155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     THAN DOES BFGF.
                                                                                                                                                                     SEQUENCE FROM N.A. MEDLINE; 91347925.
                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE OF 22-48.
                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE; 88296438
                                                            OR FGF-1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       122;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BINDING
                                                                                                                                    Gallus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RAN THE LES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ద
                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARLETY OF CELL TYPES IN VITRO, THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      75 VSIKGVSANRFLAMKEDGRLLALKCATEECFFFERLESNNYNTYRSRKYSD--WYVALKR 132
                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
                                                                                                                                                                                                       Ol-FEB-1996 (Rel. 33, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15 LPDDGGGGAFPPGHFKDPKRLYCKNGGFFLRINPDGRVDGVREKSDPHIKLQLQAEERGV 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Borja A.Z., Zeller R., Meijers C.; "Expression of alternatively spliced bFGF first coding exons and antisense mRMNs during chicken embryogenesis."; bev. Biol. 157:110-118(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BY SIMILARITY. HEPARIN-BINDING GROWTH FACTOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 158;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRINTS; PRO0262; ILLHEGF.
PRINTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        41; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HEPARIN (POTENTIAL).
7B69B684C17F1816 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 531; DB 1; Lo Pred. No. 7.37e-105;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HEPARIN (POTENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           27; Mismatches
                                                                                                                           AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ą
                                                                                                                        158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              133 TGQYKPGPKTGPGQKAILFLPMSAKS 158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | | ||:| ||||||||: |
146 NGSCKRGPRTHYGQKAILFLPLPVSS 171
                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                119 122 HI
158 AA; 17374 MW;
                                                                                                                                                                                    01-FEB-1996 (Rel. 33, Created)
01-FEB-1996 (Rel. 33, Last seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; M95707; AAA48617.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         42.8%;
larity 52.1%;
Conservative
GOKAILFLPLPVSSD 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STANDARD;
                                                                                                                                                                                                                                                                                                                                                                     Gallus gallus (Chicken)
                                                                                                                                                                                                                                                                                                            GROWTH FACTOR) (BFGF).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HSSP; P09038; IBFF.
PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SUBUNIT: MONOMER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A. MEDLINE; 93246053.
                                                                                                                                                                                                                                                                                                                                        OR FGF-2
                                                                  7
FGF2_CHICK
P48800;
01-r-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 8
ID FGF2_SHEEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gallus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CHAIN
   158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                        RESIDENT OF THE PROPERTY OF TH
   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
```

ä

US-09-121-017B-25.rsp

PAR REPRESENTATION OF THE PROPERTY OF THE PROP

```
SEQUENCE OF 1-9
                                                                                                                                                                                                           FACTOR].
FGF2 OR FGF-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TISSUE-KIDNEY;
                                                             23-OCT-1986
     FGF2_BOVIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         factor,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@labs.ib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGENTS
IN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       72 VSIKGVCANRYLAMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKR 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            26 VPSPAGARANGSANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGE 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12 LPEDGGSSAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGV 71
01-FEB-1991 (Rel. 17, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                             Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEBS Lett. 224:128-132(1987).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES VITRO. THERE ARE DIFFERENCES IN THE IISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .;
~
                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE; 88055577.
Simpson R.J., Moritz R.L., Lloyd C.J., Fabri L.J., Nice E.C., Rubira M.R., Burgess A.W.;
Primary structure of ovine pituitary basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CELL ATTACHMENT SITE (POTENTIAL)
CELL ATTACHMENT SITE (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HEPARIN-BINDING GROWTH FACTOR 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 529, DB 1; Length 155;
Pred. No. 2.45e-104;
26; Mismatches 41; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
Sutton R., Ward W.G., Raphael K.A., Cam G.R.;
Submitted (SEP-1994) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
B5F2364BA610606D CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   130 TGQYKLGPKTGPGQKAILFLPMSAKS 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   119 HE
17280 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRINTS; PRO0262; ILLHBGF.
PRINTS; PRO0263; HBGFFGF.
PROSITE; PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL, L36136, AAA31519.1; -. PIR; S00185, S00185. HSSP, P09038; IBFF. PFAM; PFO0167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 42.6%;
Best Local Similarity 52.7%;
Matches 77; Conservative
                                                                                                                                                                                                                                                          Bovidae; Caprinae; Ovis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             48
90
31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SUBUNIT: MONOMER
                                                                                                                                        FGF2 OR FGF-2.
Ovis aries (Sheep).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            116 · 1
155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE OF 9-155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SITE
```

S 8

```
Science 251:90-93(1991).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE; 86016731.

Esch F., Baird A., Ling N., Ueno N., Hill F., Denoroy L., Klepper R., Gospodarowicz D., Boehlen P., Guillemin R.;
Primary structure of bovine pituitary basic fibroblast growth factor (FGE) and comparison with the amino-terminal sequence of bovine brain
                                                     23-OCT-1986 (Rel. 02, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTATROPIN) (CONTAINS: KIDNEY-DERIVED GROWTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE; 87119165.
UGHO N., Baird A., Esch F., Shimasaki S., Ling N., Guillemin R.;
"Purification and partial characterization of a mitogenic factor from
bovine liver: structural homology with basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cell growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE; 86095426.
Baird A., Esch F., Boehlen P., Ling N., Gospodarowicz D.;
"Isolation and partial characterization of an endothelial cell growth
factor from the bovine kidney: homology with basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE; 91095983.
Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
Hsu B.T., Rees D.C.;
"Three-dimensional structures of acidic and basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                               Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.;
"Human basic fibroblast growth factor: nuclectide sequence, genomic
organization, and expression in mammalian cells.";
cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).
                                                                                                                                                                                    Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Buteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ueno N., Baird A., Esch F., Ling N., Guillemin R.;
"Isolation of an amino terminal extended form of basic fibroblast
growth factor.";
                                                                                                                                                                                                                                                                            MEDLINE; 86261806.

Abraham J.A., Mergia A., Whang J.L., Tumolo A., Friedman J.,
Hjerrild K.A., Gospodarowicz D., Fiddes J.C.;
Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fibroblast growth factor.";
Science 233:545-548(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Proc. Natl. Acad. Sci. U.S.A. 82:6507-6511(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Biochem. Biophys. Res. Commun. 138:580-588(1986)
 155 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              X-RAY CRYSTALLCGRAPHY (3.0 ANGSTROMS).
                                      (Rel. 02, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Regul. Pept. 16:135-145(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Regul. Pept. 12:201-213(1985)
STANDARD;
                                                                                                                                                                                                                          Bovidae; Bovinae; Bos.
                                                                                                                                                                   Bos taurus (Bovine).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE OF 10-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE; 86295737.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE OF 21-40.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE OF 25-41.
                                                                                                                                                                                                                                            [1]
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE; 87217066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            factors.
```

œ

```
130 TGQYKLGPKTGPGQKAILFLPMSAKS 155
                                                                                                                                                                                                                   genomic organization."; EMBO J. 5:2523-2528(1986).
                                                               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                86186784.
                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A. MEDLINE; 89184522.
                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A. MEDLINE; 87213238.
                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  [6]
SEQUENCE OF 10-35.
                                                                                                                                                                     SEQUENCE FROM N.A. MEDLINE; 87053817.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE OF 10-39
                                                                                                                                                                                                                                                                                                                                                                                        87162468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          [8]
SEQUENCE OF 2-22.
                                                                                                                                                                                                                                                                                                                                                     terminus.
                                                                                                                                                                                                                                                                                                                                                                                                                   factor.
                                                                                                                           FGF2 OR FGFB
                                                                               01-NOV-1988
                                                               FGF2_HUMAN
P09038;
                                                                                                                                                                                                                                                                                                                                                                                                 Kurokawa T
                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Caput D.
                                                                                                                                                                                                                                                                                                                                                      amino
          셤
                           ò
                                                                This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement is (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                            SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VSIKGVCANRYLAMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKR 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LPEDGGSGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGV 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                           HEPARIN-BINDING GROWTH FACTOR 2. KIDNEY-DERIVED GROWTH FACTOR.

CELL ATTACHMENT SITE (POTENTIAL).

HEPARIN (POTENTIAL).

HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 155;
                                                                                                                                                                            PERM; PF00167; FGF, 1.
PRINTS; PR00262; ILLHBGF.
PRNTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding; 3D-structure.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   151
17250 MW; BE6CE70FA6107129 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 525; DB 1; Le
Pred. No. 2.70e-103;
26; Mismatches 41;
                                                                                                                                    EMBL; M13440; AAA30518.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             42.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity 52.7%;
Matches 77; Conservative
                                                                                                                                            PIR; A24663; GKBOB.
PIR; A24819; A24819.
PIR; A32878; A32878.
PDB; 1BAS; 31-OCT-93.
                  SUBUNIT: MONOMER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                            SITE
SITE
BINDING
BINDING
                                                                                                                                                                                                                                                                                               STRAND
TURN
STRAND
TURN
STRAND
TURN
HELIX
                                                                                                                                                                                                                                                                                                                                                                                                        TURN
STRAND
HELIX
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                            TURN
STRAND
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                STRAND
                                                                                                                                                                                                                                                                                                                                                                               STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAND
                                                                                                                                                                                                                                   PROPEP
                                                                                                                                                                                                                                              CHAIN
                                                                                                                                                                                                                                                     CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HELLIX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  72
                                                                                                                                                                                                                                                                                                                                                                      TURN
                                                                                                                                                                                                                                                                                                                                                                                        IURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IURN
8888888888888888888888
                                                                                                                                                                                          SETTTTTTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  õ
```

```
MEDLINE; 86275260.

Gautschi P., Frater-Schroeder M., Boehlen P.;

"Partial molecular characterization of endothelial cell mitogens from human brain: acidic and basic fibroblast growth factors.";
                                                                                                                                                                                                                                                                                                                       01-NOV-1998 (Rel. 09, Last sequence update)
01-NOV-1997 (Rel. 35, Last annotation update)
HEPRAIN GROWTH GROWTH GATOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTATROPIN)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE; 87217666.

Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.;

"Human basic fibroblast growth factor: nucleotide sequence, genomic
organization, and expression in mammalian cells.";

cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sommer A., Brewer M.T., Thompson R.C., Moscatelli D., Presta M., Rifkin D.B.;
Rifkin D.B.;
"A form of human basic fibroblast growth factor with an extended
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            are
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.; "Human brain-dearived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitogenic activities."; Biochem. Biophys. Res. Commun. 135:541-548(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       kurokawa T., Sasada R., Iwane M., Igarashi K.;
'Cloning and expression of cDNA encoding human basic fibroblast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Abraham J.A., Whang J.L., Tumolo A., Mergia A., Friedman J., Gospodarowicz D., Fiddes J.C.; "Human basic fibroblast growth factor: nucleotide sequence and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               High molecular mass forms of basic fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Prats H., Kaghad M., Prats A.C., Klagsbrun M., Lelias J.M.,
Liauzun P., Chalon P., Tauber J.P., Amalric F., Smith J.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          initiated by alternative CUG codons.";
Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Biochem. Biophys. Res. Commun. 144:543-550(1987)
                                                                                                                                                                                                        Æ
                                                                                                                                                                                                        155
146 NGSCKRGPRTHYGQKAILFLPLPVSS 171
                                                                                                                                                                                                                                                                                     (Rel. 09, Created)
(Rel. 09, Last seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'EBS Lett. 213:189-194(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TEBS Lett. 204:203-207(1986)
```

σ

```
146 NGSCKRGPRTHYGQKAILFLPLPVSS 171
                                                                                                                                                                                                                                                                                                                    155
90
90
34
34
45
52
52
50
60
70
70
80
                                                                                                                                   1BFC; 03-APR-96.

1BFG; 16-JUN-97.

2BFH; 31-JAN-94.

2BFH; 08-NOV-96.

1BLD; 08-NOV-96.
            A26642.
B24243.
B24301.
B32878.
S00297.
                                                                                                           1FGA; 15-JUL-93
1BFB; 03-APR-96
                                                                                2FGF; 15-APR-92
4FGF; 15-JUL-93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              155 AA;
            A26642; B24243; B24301; B32878; S00297;
                                                                                                                                                                                                                                                                                                          3D-structure
                                                                                                                                                                                                                      134920;
                                                                                                                                                                             2BFH;
1BLA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                CHAIN
SITE
SITE
BINDING
BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAND
TURN
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                  TURN
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HELIX
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAND
                                                                                                                                                                                                                                                                                                                     PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HELIX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FURN
                                                                                                                                                                                                                                                                                                                                                                                                                                             TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@lsb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Story M.T., Esch F., Shimasaki S., Sasse J., Jacobs S.C., Lawson R.K., "Anthor-terminal sequence of a large form of basic fibroblast growth factor isolated from human benjon prostatic hyperplastic tissue."; Blochem. Blophys. Res. Commun. 142:702-709(1987).
                                                                                                                                                                          X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).
MEDLINE; 94004464.
Eriksson A.E., Cousens L.S., Matthews B.W.;
Refinement of the structure of human basic fibroblast growth factor at 1.6-A resolution and analysis of presumed heparin binding sites by selenate substitution.";
                                                                                                                                                                                                                                                                                                               Zhang J., Cousens L.S., Barr P.J., Sprang S.R.;
"Three-dimensional structure of human basic fibroblast growth factor,
a structural homolog of interleukin 1 beta.";
Proc. Natl. Acad. Sci. U.S.A. 88:3446-3451(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE; 91095983.

WENDLINE; 91095983.

WENDLY, Rede D.C.;

Three-dimensional structures of acidic and basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE; 92121151.
Ago H., Kitagawa Y., Fujishima A., Matsuura Y., Katsube Y.;
"Crystal structure of basic fibroblast growth factor at 1.6-A
                                                                                           MEDLINE; 91195367.
Eriksson A.E., Cousens L.S., Weaver L.H., Matthews B.W.;
"Three-dimensional structure of human basic fibroblast growth
                                                                                                                                                   Proc. Natl. Acad. Sci. U.S.A. 88:3441-3445(1991).
                                                                                                                                                                                                                                                                                        K-RAY CRYSTALLOGRAPHY (1.8 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS).
                                                                              K-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS)
                                                                                                                                                                                                                                                                                                                                                                                     X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; M17599; AAA52534.1; ALT_INIT.
EMBL; X04431; CAA28027.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       X04433; CAA28029.1; -. M27968; AAA52448.1; -. J04513; AAA52533.1; ALT_INIT.
                                                                                                                                                                                                                                                             Protein Sci. 2:1274-1284(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Biochem. 110:360-363(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Science 251:90-93(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -!- SUBUNIT: MONOMER.
                                                                                                                                                                                                                                                                                                       MEDLINE; 91195368.
MEDLINE; 87156686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRUCTURE BY NMR.
                                                                                                                                                                                                                                                                                                                                                                                                                                            resolution."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      factors.
                                                                                                                                      factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL;
```

```
72 VSIKGVCANRYLAMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYT--SWYVALKR 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12 LPEDGGSGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGV 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;
                                                                                                                                                                       HEPARIN-BINDING GROWTH FACTOR 2.
CELL ATTACHMENT SITE (POTENTIAL)
CELL ATTACHMENT SITE (POTENTIAL)
HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          41.7%; Score 518; DB 1; Length 155; 52.1%; Pred. No. 1.79e-101; ative 27; Mismatches 41; Indels
PFAM; PF00167; FGF; 1.
PRINTS; PR00262; ILIHBGF.
PRINTS; PR00263; ILIHBGF.
PROSITE; PR00347; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    17254 MW; BE6CE13373007129 CRC64;
                                                                                                                                                                                                                                                 HEPARIN (POTENTIAL)
HEPARIN (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               130 TGQYKLGSKTGPGQKAILFLPMSAKS 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity 52.1%;
les 76; Conservative
```

ä

US-09-121-017B-25.rsp

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the Buropean Bioinformatics Institute. There are no restrictions on its mose by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ä
                                                                                                                                                                                        Hebert J.M., Basilico C., Goldfarb M., Haub O., Martin G.R.,
"Isolation of cDNAs encoding four mouse FGF family members and
characterization of their expression patterns during embryogenesis.";
Dev. Biol. 138:454-465(1990).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIGGENIC AGENTS
IN VIVO AND ARE POTENT MITGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        71 VSIKGVCANRYLAMKEDGRLLASKCVTEECFFFERLESNNYNTYRSRKYS--SWYVALKR 128
                                                                                                                                                                                                                                                                                  -!- SUBUNIT: MONOMER.
-!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                   -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-APR-1990 (Rel. 14, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
GROWTH FACTOR) (BFGF) (PROSTATROPIN).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12 LPEDGGA-AFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGV 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                   Craniata; Vertebrata; Euteleostomi;
Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HEPARIN-BINDING GROWTH FACTOR HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; M30644; AAA37621.1; -.
PIR; C37360; C37360.
MSSP; P09038; 1BFF.
MGD; MGI:95516; FGF2.
PFAM; PF00167; FGF; 1.
PRINTS; PR00262; IIJHBGF.
PRINTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGFFGF.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            40; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HEPARIN (POTENTIAL).
689F677416274388 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 513; DB 1; Le Pred. No. 3.58e-100;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          26; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            154 AA
                                  154 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         129 TGQYKLGSKTGPGQKAILFLPMSAKS 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             146 NGSCKRGPRTHYGQKAILFLPLPVSS 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             10 154 HE
26 30 HE
115 118 HE
154 AA; 17153 MW;
                                                      01-APR-1990 (Rel. 14, Created)
                                                                                                                                   Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rođentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    41.3%;
larity 52.7%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                   STANDARD;
                                                                                                                          Mus musculus (Mouse).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
                                                                                                                                                                    SEQUENCE FROM N.A. MEDLINE; 90201563.
                                                                                                             FGF2 OR FGF-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            77;
                                FGF2_MOUSE
P15655;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LT 12
FGF2_RAT
P13109;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CHAIN
BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
                      RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a a
                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
```

```
between the Swiss Institute of Bloinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            This SWISS-PROT entry is copyright. It is produced through a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SUBUNIT: MONOMER.
TISSUE SPECIFICITY: FOUND IN ALL THE TISSUES EXAMINED.
MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                 Shimmsaki S., Emoto N., Koba A., Mercado M., Shibata F., Cooksey K., Baird A., Ling N.; "Complementary DNA cloning and sequencing of rat ovarian basic fibroblast growth factor and tissue distribution study of its mRNA."; Biochem. Biophys. Res. Commun. 157:256-263(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
01-JAN-1990 (Rel. 13, Created)
01-JAN-1990 (Rel. 13, Last sequence update)
15-JUL-1998 (Rel. 36, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTATROPIN).
                                                                                                                                                                                                                           Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDINE: 97200905.
Pasumarthi K.B.S., Jin Y., Cattini P.A.;
Cloning of the rat fibroblast growth factor-2 promoter region and its response to mitogenic stimuli in glioma C6 cells.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           rundunus, occesio...
rundawa T., Seno e. i Igarashi K.;
"Nuclectide sequence of rat basic fibroblast growth factor cDNA.";
Nucleic Acids Res. 16:5201-5201(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HEPARIN-BINDING GROWTH FACTOR 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HSSP, P09038; IBFF.
PPRAM: PF00167; FGF; 1.
PRINTS; PR00262; ILIHBGF.
PRINTS; PR00263; HBGFFGF.
PROSTIE; PS00247; HBGFFGF.
Growth factor; 1.
PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE OF 1-28 FROM N.A. STRAIN-SPRAGUE-DAWLEY, TISSUE-TESTIS;
                                                                                                                                                                                                                                                                                                                                                     STRAIN-SPRAGUE-DAWLEY; TISSUE-OVARY; MEDLINE; 89061721.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Neurochem. 68:898-908(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL: X07285; CAA30265.1; -. EMBL: U78079; AAC53225.1; -. EMBL: X61697; CAA43863.1; -. PIR; S00876; S00876. PIR; A31674; A31674.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; M22427; AAA41210.1; -.
                                                                                                                                                                                                   Rattus norvegicus (Rat).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE; 88262516.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                  FGF2 OR FGF-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TISSUE=BRAIN
```

```
between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This SWISS-PROT entry is copyright. It is produced through a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 entitles requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                           ä
                                                                                                                                                                                                                                                                                                                                                                      MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                           64 QAEERGVVSIKGVCANRYLAMKEDGRLLASKCVTEECFFFERLESNNYNTYRSRKYS--S 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-FEB-1996 (Rel. 33, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
01-NOV-1997 (Rel. 35, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST FGF2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19 GVLVGMVVPSPAGARANGSANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQL 78
                                                                                                                                                                                                                                4 GSITSLPALPEDGGGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQL 63
                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Monodelphis domestica (Short-tailed grey opossum).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Metatheria; Didelphimorphia; Didelphidae; Monodelphis.
                                                                                                                                                                        7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HEPARIN-BINDING GROWTH FACTOR 2. HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
7E655FCC49BF1209 CRC64;
                                                                                                                Score 513; DB 1; Length 154;
Pred. No. 3.58e-100;
29; Mismatches 46; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1; Length 156;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; 215154; CAA78854.1; ALT_INIT.
HSSP; P09038; 1BFF.
PFAM; PF00167; FGF; 1.
PRINTS; PR00262; 111.1BGF.
PRINTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                HEPARIN (POTENTIAL).
MW, 1A0F14FF423D8403 CRC64;
     HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 500; DB 1; Pred. No. 8.48e-97;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         139 WFVGLKKNGSCKRGPRTHYGOKAILFLDEPVSS 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                           122 WYVALKRIGOYKLGSKIGPGQKAILFLPMSAKS 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BY SIMILARITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             17303 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     40.3%;
52.8%;
                                                                                                                Query Match 41.3%;
Best Local Similarity 49.7%;
Matches 76; Conservative
  30
118
17139 N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       156
32
120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SUBUNIT: MONOMER.
26
115
154 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                117 :
156 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LT 13
FGF2_MONDO
P48798;
  BINDING
BINDING
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BINDING
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BINDING
     FT
                                                                                                                                                                                                                                윱
                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                           硆
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SCCCCCC REFERENCE ON SECULATION OF THE SECURATION OF THE SECULATION OF THE SECURATION OF THE SECULATION OF THE SECURATION OF THE SECURATIO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STTTTT8
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics. Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ..
7
                                                                                                       STETGQYLAMDTDGLLYGSQTPNEECLFILERLEENHYNTYISKKHAEKNWFVGLKKNGSC 149
                                                                                       GVCANRYLAMKEDGRILLALKYVTEECFFFERLESNNYNTYRSRKYS--NWYVALKRTGQY 134
                                                                                                                                                                                                                                                         ou-JAN-1990 (Rel. 13, Last sequence update)
01-NOV-1997 (Rel. 13, Last annotation update)
HEDARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
FGF2 OR FGF-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                             GGGGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGIREKSDPNIKLQLQAEERGVVSIK 76
                                           AGARANGSANYKKPKLLYCSNGGHPLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIK 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE; 89058621.

Kimelman D., Abraham J., Haaparanta T., Palisi T., Kirschner M.;

"The presence of fibroblast growth factor in the frog egg: its role as a natural mesoderm inducer.";

Science 242:1053-1056(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
 Gaps
                                                                                                                                                                                                                                                                                                                                                             Xenopus laevis (African clawed frog).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Amphibla; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
 ;;
;;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ñ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           identification of an mRNA coding for FGF in the early Xenopus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WEDLINE; 88052890.
Kimelman D., Kirschner M.;
Synergistic induction of mesoderm by FGF and TGF-beta and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HEPARIN-BINDING GROWTH FACTOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRINTS; PR00262; ILLHBGF.
PRINTS; PR00262; HBGFFGF.
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
MISSING (IN REF. 2).
036735C8063142FD CRC64;
 40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 494; DB 1; Le
Pred. No. 3.05e-95;
30; Mismatches 47;
 Mismatches
                                                                                                                                                                                                                                           155 AA.
25;
                                                                                                                                                 135 KLGSKTGPGQKAILFLPMSAKS 156
                                                                                                                                                                  EMBL; M18067; AAA49726.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               95-155 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ouery Match
Best Local Similarity 48.1%;
Matches 74; Conservative
 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       17241
                                                                                                                                                                                                                                           STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            155
31
119
111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HSSP; P09038; IBFF.
PFAM; PF00167; FGF; 1
                                                                                                                                                                                                                                                                                                                                                                                                            Xenopodinae; Xenopus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         embryo.";
cell 51:869-877(1987)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PIR; A29618; A29618.
PIR; A40117; A40117.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        111
155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
75;
                                                                                                                                                                                                                           LT 14
FGF2_XENLA
P12226;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BINDING
                                                         30
                                                                                                                   90
                             17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
 Matches
                                                                                                                                                                                                                         요
                                                         ò
                                                                                      셤
                                                                                                                   ò
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Winkles J.A., Friesel R., Alberts G.F., Janat M.F., Liau G.;
"Elevated expression of basic fibroblast growth factor in an immortalized rambit smooth muscle cell line.";
Am. J. Pathol. 143:518-527(1993)
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIGGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                              64 LOAVERGVVSIKGITANRYLAMKEDGRLTSLRCITDECFFFERLEANNYNTYRSRKYS-- 121
                                                                                                                             -!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           63 VSIKGVCANRYLAMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKR 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3 LPEDGGSGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGV 62
4 GSITTLPTESEDGGNTPFSPGSFKDPKRLYCKNGGFFLRINSDGRVDGSRDKSDSHIKLO
                                                                                                                                                                                                                                                                                                                                                                                        01-FEB-1996 (Rel. 33, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTATROPIN) (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Oryctolagus cuniculus (Rabbit).
Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi,
Mammalia, Eutheria, Lagomorpha, Leporidae, Oryctolagus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 475; DB 1; Length 137;
Pred. No. 2.49e-90;
25; Mismatches 39; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15418 MW; 0D9EE457B88E8C51 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
STRAIN-NEW ZEALAND WHITE; TÌSSUE-SMOOTH MUSCLE;
MEDLINE; 93343209.
                                                                                                                                                                                                                            122 SWYVALKRTGQYKNGSSTGPGQKAILFLPMSAKS 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 38.2%;
Best Local Similarity 51.8%;
Matches 71; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121 TGQYKLGSKTGPGQKAI 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; L12034; AAA31248.1;
HSSP; P09038; 1BFF.
                                                                                                                                                                                                                                                                                                                                               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      137 AA;
                                                                                                                                                                                                                                                                                                                     LT 15
FGF2_RABIT
P48799;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PFAM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SP FF FW DR FF FF S
셤
                                              ò
                                                                                              a
a
                                                                                                                                               ò
                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
```

```
146 NGSCKRGPRTHYGQKAI 162
```

ò

Search completed: Tue Aug 29 16:07:31 2000 Job time: 32 secs.

*		*
* * * * *	(TM)	*****
* * * * * *	·	****
* * * *	' <del></del> ' '	***
*******		******
*******		*****
********		*******
***************************************		***************************************
******	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	*****
*******		*******
*		* * *

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

protein - protein database search, using Smith-Waterman algorithm MPsrch\_pp

Tue Aug 29 16:07:49 2000; MasPar time 16.22 Seconds 735.228 Million cell updates/sec

Dular output not generated.

>US-09-121-017B-25 (1-172) from US09121017B.pep 1242 I MSRGAGRVQCTLQALVFLGV......PRTHYGQKAILFLPLPVSSD 172 Title: Description: Perfect Score: Sequence:

225878 seqs, 69334122 residues PAM 150 Gap 11 Searched:

Scoring table:

Minimum Match 0% Listing first 45 summaries Post-processing:

1:sp\_archea 2:sp\_bacteria 3:sp\_fungi 4:sp\_human 5:sp\_invertebrate 6:sp\_mammal 7:sp\_mhc 8:sp\_organelle 9:sp\_bage 10:sp\_plant 11::sp\_rodent 12:sp\_unclassified 13:sp\_vertebrate 14:sp\_virus sptremb112 Database:

Mean 42.894; Variance 68.754; scale 0.624 Statistics: Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

ا ق	97	95	64	55	47	44	42	38	36	36	36	35	34	33	33	32	32	29	27	27
Pred. No	264e-97	.45e-9	7.46e-64	.35e-5	.24e-4	.47e-4	.27e-4	2.75e-3	1.89e-3	.21e-3	.44e-3	1.46e-35	2.15e-3	.97e-	.38e-3	2.38e-3	.38e-3	.19e-29	2.02e-2	37e-27
Pre	7	÷		m	~	Ä	6	~	Ä	m	'n.	4	~	4	œ	~	7	-	~	m
	LAST	ROWT	E	FACT	ROWI	H FA	FACT		GROW	GROW	FACT	T GR	FACT	FACT	FACT	FACT	FACT	FACT		H FA
. !	BASIC FIBROBLAST	F-FBROBLAST GROWN	FGF (FRAGMENT	FIBROBLAST GROWTH FACT	BASIC FIBROBLAST GROWT	KERATINOCYTE GROWTH FA	FIBROBLAST GROWTH		OBLAST	ACIDIC FIBROBLAST	PIBROBLAST GROWTH FACT	PUTATIVE FIBROBLAST GR	GROWTH	GROWTH	GROWTH	GROWTH	GROWTH	GROWTH	TEIN.	KERATINOCYTE GROWTH
Description			: FGF (	BLAST	FIBRO	FINOCYT	DBLAST	18.	ACIDIC FIBROBLAST	IC FIBR	<b>DBLAST</b>	LIVE FI	PIBROBLAST	TBROBLAST	PIBROBLAST	FIBROBLAST	FIBROBLAST	'IBROBLAST	ET-756 PROTEIN.	PINOCYT
Desci	21 KD	BASIC	BASIC	FIBR	BASIC	KERA	FIBR(	FHF-4B.	ACID	ACID	FIBR	PUTAC	FIBR	FIBR	FIBR	FIBR	FIBR	FIBR	LET	KERAJ
											`									
a	P78443	077767	P79706	007659	060487	P79150	042407	960680	016588	016089	054837	Q9YH31	09W6A1	099517	O9YGD8	095830	Q9W6A2	P79925	076831	077561
DB	4	ø	13	13	=	o	13	1	4	4	Π	13	13	4	13	7	13	13	Ŋ	9
Match Length DB	196	130	101	146	115	194	212	252	9	29	70	196	243	127	206	192	245	200	425	74
Match	41.7	41.1	30.8	27.9	25.2	24.2	23.3	22.1	21.4	21.3	21.3	20.9	20.7	20.5	20.1	20.0	20.0	19.0	18.2	18.1
Score	518	511	382	346	313	301	289	274	266	265	264	260	257	251	250	248	248	236	226	225
Result No.	1	7	m	4	S	9	. 7	80	σ	10	11	12	13	14	15	16	17	18	19	70

53 LPEDGGSGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIK. QLQAEERGV 112 

g ò

								•																
9.356-27	1.56e-26	1.97e-25	1.48e-24	1.11e-23	3.02e-23	9.91e-22	2.67e-21	1.37e-19	1.37e-19	5.94e-19	4.16e-18	9.32e-13	5.60e-05	2.80e-04	6.20e-04	1.36e-02	1.99e-02	1.99e-02	1.99e-02	1.99e-02	1.99e-02	4.19e-02	4.19e-02	4.19e-02
FIBROBLAST GROWTH FACT	GROWTH	FGF HOMOLOG.	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	R33683_2.	FIBROBLAST GROWTH FACT	FGF-ACMNPV ORF32.	BASIC FIBROBLAST GROWT	BASIC FIBROBLAST GROWT	FGF-19.	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	CONSERVED PROTEIN.	HYPOTHETICAL 27.5 KD P	211AA LONG HYPOTHETICA	MAJOR MEROZOITE SURFAC	MAJOR MEROZOITE SURFAC	MEROZOITE SURFACE ANTI	PRECURSOR OF THE MAJOR	MAJOR MEROZOITE SURFAC	MAJOR MEROZOITE SURFAC	MAJOR MEROZOITE SURFAC
969060	057341	P91672	014915	042278	060371	Q9YMH2	092401	000527	016443	095750	097573	035340	062682	P79685	027154	073554	Q9YEE7	025978	025983	025924	025922	025979	025970	025977
13	13	Ŋ	4	13	7	14	14	4	4	4	9	11	9	13	٦	14	-	ស	'n	Ŋ	ഗ	Ŋ	S	'n
204	210	770	244	210	129	285	182	114	114	216	73	78	82	86	822	243	211	269	569	651	1720	569	569	569
18.0	17.9	17.5	17.1	16.8	16.7	16.1	15.9	15.3	15.3	15.1	14.7	12.6	6	9.0	8.9	8.2	8.1	8.1	8.1	8.1	8	8.0	8.0	8.0
223	222	217	213	209	207	200	198	190	190	187	183	157	116	112	110	102	101	101	101	101	101	66	66	66
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	36	40	41	42	43	44	45

# ALIGNMENTS

|--|

9 Gaps

.; (7)

Indels

Length 101;

8

g

ò

ò

```
Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Archosauria; Aves;
Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.
                                                                                                                                                                                       43 PKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYLAMDID 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   45 ERVSAMVKLQLQAEERGVVSIKGVSANRFLAMKEDGRLLALKCATEECFFFERLESNNYN 104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 PKRLYCKNGGFFLRINSDGKVDGAREKSDSYIKLQLQAEERGVVSIKGVCANRYLAMKDD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q60487 PRELIMINARY; PRT; 115 AA.
Q60487 CAPELIMINARY; PRT; 115 AA.
Q60487 CAPELIMINARY; PRT; 115 AA.
Q60487 CAPEMBLEEL. 01, Created)
O1-NOV-1996 (TrEMBLEEL. 01, Last sequence update)
O1-NOV-1999 (TrEMBLEEL. 12, Last annotation update)
ABSIC FIBROBLAST GROWH FACTOR (FRAGMENT).
CAVIA POLCELIUS (Guinea pig).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BORJA A.Z., ZELLER R., MEIJERS C.;
"Expression of alternatively spliced bFGF first coding exons antisense mRNAs during oflicken embryogenesis.";
Dev. Biol. 157:110-118(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MITRANI E., GRUENBAUM Y., SHOHAT H., ZIV T.,
"Fibroblast growth factor during mesoderm induction in the embryo.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         105 TYRSRKYSD--WYVALKRTGQYKPGPKTGPGQKAILFLPMSAKS 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61 GRLMALKWITDECFFFERLESNNYNTYRSRKYSD--WYVALKR 101
                                                                                                                                                                                                                                                                                                                                                                                                         Last sequence update)
Last annotation update)
                                                                                     Score 382; DB 13; L
Pred. No. 7.46e-64;
18; Mismatches 28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 346; DB 13;
Pred. No. 3.35e-55;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        146 AA; 16182 MW; 44C5274B CRC32;
                                                     1CD93BB0 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20; Mismatches
                                                                                                                                                                                                                                                                                                                                                     Ā
                                                                                                                                                                                                                                                                                                                                                                                         Created)
                                                     101 AA; 11907 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Development 109:387-393(1990).
EMBL, W95706; AAA48616.1; -.
EMBL, X56804; CAA40139.1; -.
HSSP; P09038; 2BFH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PROSITE; PS00247; HBGF_FGF; 1.
PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                  30.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     [2]
SEQUENCE OF 52-85 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              27.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity 48.1%; 50; Conservative
                                                                                                                            55; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRINTS; PR00262; ILLHBGF, SEQUENCE 146 AA; 1618;
                                  101
PFAM; PF00167; FGF; 1.
                                                                                                          Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         93246053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       90382254
                                  NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
ID 06
AC 06
DT 01
DT 01
DE BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
 RIFIS
                                                                                                                                                                g
                                                                                                                                                                                                    δy
                                                                                                                                                                                                                                      ద
                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ä
                                      113 VSIKGVCANRYLAMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYT--SWYVALKR 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61 KEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGPKTGPGQ 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100 DIDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHYGQ 159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 FKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYLAM 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TISSUE-EMBRYO;
SUZUKI A.S., TABATA I., SAKAGUCHI K., TAKABATAKE I., TAKESHIMA K.,
KANEDA I.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "Serial expression of the genes in a mesodermalizing ectoderms early Cynops gastrula."; Submitted (NOV-1996) to the EMBL/GenBank/DDBJ databases. EMBL; D89443; BAR13958.1; HSSP; P09038; 2BFH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ;
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-MAY-1997 (TrEMBLrel. 03, Created)
01-MAY-1997 (TrEMBLrel. 03, Last sequence update)
01-MOV-1999 (TrEMBLrel. 12, Last annotation update)
BASIC FGF (FRAGMENT).
Cynops pyrrhogaster (Japanese common newt).
Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Amphibia; Batrachia; Caudata; Salamandroidea; Salamandridae; Cynops.
                                                                                                                                                                                                                                                                                                                          Canis familiaris (Dog).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Carnivora; Fissipedia; Canidae; Canis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 511; DB 6; Length 130;
Pred. No. 1.45e-95;
21; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                TISSUE-ADERGAL GLAND;
TROCHTA O.A., JACOBS R.M., LAMARRE J.;
The role DFGF in canine Hemanglosarcoma.";
Submitted (APR-1998) to the EMBL/GenBank/DDBJ databases.
EMBL; AF060562; AAC35912.1;
HSSP; P09038: IBFF.
PROSITE; PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                 01-NOV-1998 (TrEMBLrel. 08, Created)
01-NOV-1998 (TrEMBLrel. 08, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          130 130 130 130 130 AW; DB6A90A4 CRC32;
                                                                                                                                                                                                  130 AA
                                                                                     171 TGQYKLGSKTGPGQKAILFLPMSAKS 196
                                                                                                              146 NGSCKRGPRTHYGQKAILFLPLPVSS 171
                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROSITE; PS00247; HBGF_FGF; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 41.1%;
Best Local Similarity 55.3%;
Matches 73; Conservative
                                                                                                                                                                                                  PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    119 KAILFLPMSAKS 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      160 KAILFLPLPVSS 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                               2
077767
077767;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             T 3
```

g ò g ò ST FIR RAC REPORT FIRE SO

early chick

; ;

Indels

Length 146;

US-09-121-017B-25.rspt

m

```
ectodermal factor.";
Development 124:2235-2244(1997).
EMBL: D86333; BAA24945.1; -.
HSSP; P01968; 1BAR.
PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 23.3%;
Best Local Similarity 39.1%;
Matches 52; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       22.1%;
Local Similarity 37.5%;
les 48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 200 NTSAHFLPMVVMS 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 159 OKAILFLPLPVSS 171
                                                                                                                                                                                                                                                     [1]
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TISSUE-BRAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 8
1D 089096
DZ 089096;
DT 01-NOV-
DD 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         :960680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 යි
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE; 96226403.

CANATAN H., CHANG W.Y., SUGIMOTO Y., SHIDAIFAT F., KULP S.K.,
BRUEGGEMEIER N.W., LIN Y.C.;
"Keratinocyte growth factor (KGF/FGF-7) has a paracrine role in canine
prostate: molecular cloning of mRNA encoding canine KGF.";
DNA Cell Balo. 15:247-254 (1996).
EMBL: U80800; AAB38972.1;
HSSP; P05230; 2AFG.
PROSITE; PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                46 LYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYLAMDTDGLL 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 128 YAKKECNEDCNFKELILENHYNTYASAKWTHSGGEMFVALNQKGVPVRGKKTKKEQKTAH 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |: ||:| | |: ||||||| | | |: ||:||: ||:|| ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    69 LFCRTQ-WYLRIDKRGKVKGTQEMKNSYNIMEIRTVAVGIVAIKGVESEYYLAMNKEGKL 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 GFFLRIHPDGRVDGVREKTDPHIKHNFKPKA-EELCYQGSLSNRYLAMKEDGRLLASKCV 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .;
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Carnivora; Fissipedia; Canidae; Canis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 115;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 194;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 301; DB 6; Length 194
Pred. No. 1.47e-44;
28; Mismatches 47; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 22; Mismatches 31; Indels
                                                                                                                                                            RICCIARDELLI C.;
Submitted (JAN-1996) to the EMBL/GenBank/DDBJ databases.
EMBL: L15974, LAA85394.1; -.
HSSP; P09038; 2BFH.
Euthería; Rodentia; Hystricognathi; Caviidae; Cavia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-MAY-1997 (TrEMBLrel. 03, Created)
01-MAY-1997 (TrEMBLrel. 03, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
KERATINOCYTE GROWTH FACTOR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60 TDECFFFERLESNNYNTYRSRKYS; - SWYVALKRTGQYKLG 98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 313; DB 11;
Pred. No. 2.24e-47;
                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE 115 AA; 13495 MW; 4B12914A CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              194 AA; 22476 MW; 2B71A8ED CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   212 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LT 7 042407 PRELIMINARY; PRT; 042407; 01-JAN-1998 (TrEMBLrel. 05, Created)
                                                                                                                                                                                                                                                                                                            PROSITE; PS00247; HBGF_FGF; 1.
PFAM; PF00167; FGF; 1.
NON_TER 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                25.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7 Match 24.2%;
Local Similarity 38.6%;
les 49; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     45; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PFAM; PF00167; FGF; 1.
PRINTS; PR00262; IL1HBGF.
PRINTS; PR00263; HBGFFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Canis familiaris (Dog).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
Matches 45; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                164 FLPLPVS 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              188 FLPMAIT 194
                                                                                                                               TISSUE-PROSTATE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
```

LT 6 P79150 P79150;

ò

셤

Query Match

Matches

셤

g

õ

ò 셤 ò RESULT ID 04 AC 04 DT 01

```
4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         'n
01-JUN-1998 (TrEMBLrel. 06, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
FIBROBLAST GROWTH FACTOR 10.
Gallus gallus (Chicken)
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE; 97330690.
OHUGHI H., NAKAGAWA T., YAWAMOTO A., ARAGA A., OHTA T., ISHIMARU Y., YOSHIOKA H., KUWANA T., NOHNO T., YAMASAKI M., ITOH N., NOJI S.; "The mesenchymal factor, FCF10, initiates and maintains the outgrowth of the chick limb bud through interaction with FGF8, an apical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  80 LYCRQG-YYIQMHPDGALDGTKDDSTNSTLFNLIPVGLRVVAIQGVKTGLYIAMNGEGYL 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 139 YPSELFTPECKFKESVFENYYVIYSSMLYRQOESGRAWFLGLNKEGQVMKGNRVKKTKPA 198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            82 RKRKL-Y-SYNKYFLKIEKNGKVSGTKKENCPFSILEITSVEIGVVAVKSIKSNYYLAMN 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            :| || | | | || : | || : || || : || || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : || : |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             140 KKGKVYGSKEFNSDCKLKERIEENGYNTYASLNWKHNGRQMFVALNGRGATKRGQKTRRK 199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE; 98267141.
YAMMOTO S., MIKAMI T., OHBAYASHI N., OHTA M., ITOH N.;
"Structure and expression of a novel isoform of mouse FGF homologous
factor (FHF)-4.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 289; DB 13; Length 212;
Pred. No. 9.27e-42;
26; Mismatches 51; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 252;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Rattus norvegicus (Rat), and Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-NOV-1998 (TrEMBLrel. 08, Created)
01-NOV-1998 (TrEMBLrel. 08, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 274; DB 11; I
Pred. No. 2.75e-38;
26; Mismatches 49;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Biochim. Biophys. Acta 1398:38-41(1998).

EMBL; AB008908; BAA31544.1; -.

EMBL; AB008907; BAA31543.1; -.

HSSP; P03968; 1BAR.

PFAM; PF00167; FGF; 1.

SEQUENCE 252 AA; 28364 MW; 1DFD5B4B CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRINTS; PR00263; HBGFFGF.
SEQUENCE 212 AA; 23631 MW; C8AB1883 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            252 AA
```

ö

Gaps

ö

Length 59

õ g ò UN OCCUPATION NA

```
71 KRLRRLYCNVGIGFHLQVLPDGRIHGMHSES-RYSLLEISPVERGVVCMFGVQSGLFLAM 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            130 NSKGRLFGSKYFSDECKFKEMLLPNNYNAYESWRYPGM--YIALSKNGRAKKGNKVSPTM 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Notophthalmus viridescens (Eastern newt) (Triturus viridescens).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Amphibia;
Batrachia; Caudata; Salamandroidea; Salamandridae; Notophthalmus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
STRAIN=C3H/HEN; TISSUE=LIVER;
ZHANG Y.-X., HACKSHAW K.V.;
SUDmitted (JUL.1997) to the EMBL/GenBank/DDBJ databases.
EMBL; AF012926; AAB94020.1; --
HSSP; P05230; ZAXM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Submitted (CCT-1996) to the EMBL/GenBank/DDBJ databases. EMBL; U76998; AAC98812.1; -. HSSP; P09038; 1BFF. PROSTITE; P09038; 1BFF. SEQUENCE 196 AA; 22033 MW; 455E08A3 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         O9YH31,
01-MAY-1999 (TEMBLEEL. 10, Created)
01-MAY-1999 (TEMBLEEL. 10, Last sequence update)
01-NOV-1999 (TEMBLEEL. 12, Last annotation update)
PUTATIVE FIBROBLAST GROWTH FACTOR-4.
                                                                                                                                                                                                                                                                                                                                           01-JUN-1998 (TrEMBLrel. 06, Created)
01-JUN-1998 (TrEMBLrel. 06, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 264; DB 11; L6
Pred. No. 5.44e-36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        31; Mismatches 48;
  Score 265; DB 4; Le
Pred. No. 3.21e-36;
2; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 260; DB 13;
Pred. No. 4.46e-35;
                                                                                                                  20 PGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQH 56
                                                                                                                                            "Putative Newt Fibroblast Growth Factor-4.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   35 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQH 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                38 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQH 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15A1BE5E CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          196 AA.
                                                                                                                                                                                                                                                                                      70 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20.9%; Score 260;
                                                                                                                                                                                                                                                                                                                                                                                                                             FIBROBLAST GROWTH FACTOR-1 (FRAGMENT).
Mus musculus (Mouse).
                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NON_TER 70 70
SEQUENCE 70 AA; 7677 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 21.3%;
Best Local Similarity 97.2%;
Matches 35; Conservative
  Query Match 21.3%;
Best Local Similarity 94.6%;
Matches 35; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity 34.6%;
44; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRELIMINARY;
                                                                                                                                                                                                                                                      JT 11
054837
054837;
01-JUN-1998 (TrEMBLrel.
                                                                                                                                                                                                                                                                                      PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         188 TVTHFLP 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CT 12
Q9YH31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                      RESULTANGE OF THE COLOR OF THE 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                  g
                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDINE; 94069734.
ZHAO X.M., YEOH T.K., HIEBERT M., FRIST W.H., MILLER G.G.;
"The expression of acidic fibroblast growth factor (heparin-binding
growth factor-1) and cytokine genes in human cardiac allografts and T
106 YGSQTPNEECLFLERLEENHYNTYISK - - KHAE - - KNWFVGLKKNGSCKRGPRTHYGQKA 161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE; 94069734.
ZHAO X.M., YEOH T.K., HIEBERT M., FRIST W.H., MILLER G.G.;
ZHAO X.M., YEOH Gacidic fibroblast growth factor (heparin-binding growth factor-1) and cytokine genes in human cardiac allografts and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "An acidic fibroblast growth factor protein generated by alternate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE; 92202857.
LI Y.L., KHA H., GOLDEN J.A., MIGCHIELSEN A.A.J., GOETZL E.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Butheria; Primates; Catarrhin; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 60;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
ACIDIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
                                                                                                                                                                                                                                                                                                                Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 266; DB 4; Ler
Pred. No. 1.89e-36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20 PGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHTD 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Transplantation 56:1177-1182(1993).

EMBL; S67294; AAB29059.1; -.
HSSP; P05330; ZAXM.
PFOM PFOO167; FGF; 1.
S9 59 59
SEQUENCE 59 AA; 6595 MW; 1C932BID GRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6CCC7DFF CRC32;
                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ā
                                                                                                                                                                                                                                                                          01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence up
01-NOV-1999 (TrEMBLrel. 12, Last annotation
ACIDIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     splicing acts like an antagonist.";
J. Exp. Med. 175:1073-1080(1992).
EMBL; S67292; AABS9058.1;
EMBL; X65779; CAA46662.1;
HSSP; P05230; 2AXM.
PFAM; PF00167; FGF; 1.
NON_TER
                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ransplantation 56:1177-1182(1993)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60 AA; 6697 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21.4%;
89.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            35; Conservative
                                                                                                                                                                                                                              PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                       199 AHFLPKPL 206
                                                                                                            162 ILFLPLPV 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TURCK E.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                              LT 9
Q16588
Q16588;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       o16089
Q16089;
Q16089;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cells."
```

Matches

RRETTAR RETTAR RETTAR RETTAR RETTAR RETTAR DOR RETTAR DOR SO

셤

ö

Gaps

Indels

Length 70;

ä

.,

Indels

Length 196;

US-09-121-017B-25.rspt

```
15
09YGD8
09YGD8;
  ð
                                                ద
                                                                                                     ò
                                                                                                                                                      ద
                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                            DACOOCOCO DATE OF THE STANDARD OF THE STANDARD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ă
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3
                                                                                                                                                                                                                                                                                 Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Archosauria; Aves;
Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              77 LF-SQQEYFLQMHPDGTIDGTKDENSDYTLFNLIPVGLRVVAIQGVKAGLIVVAMNAEGYL 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 46 LYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYLAMDTDGLL 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    136 YSSDVFTPECKFKESVFENYYVIYSSTLYRQQESGRAWFLGLNKEGQIMKGNRVKKTKPS 195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LF-SQQGYFLQMHPDGTIDGTKDENSDYTLFNLIPVGLRVVAIQGVKASLYVAMNGEGYL 60
                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE: 99065510.
MUNOZ-SANJUNA I., SIMANDL B.K., FALLON J.F., NATHANS J.;
FRFF)-1 and of differentially spliced isoforms of FHF-2 during development and involvement of FHF-2 in chicken limb development.";
Development 126:409-421(1999).
EMBL: AR108754; AAD215751; -
PROSITE; PSO0247; HBGF-FGF; 1.
SEQUENCE 243 AA; 27455 MW; A9E6EBCD CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
COULIER F., PONTAROTII P., ROUBIN R., HARTUNG H., GOLDFARB M.,
BIRNBAUM D.,
BYOL. Evol. 0:0-0(0).
EMBL: 270276; CAA94240.1; -.
HSSP: P03968; IAFC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 243;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 251; DB 4; Length 127;
Pred. No. 4.97e-33;
30; Mismatches 48; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 257; DB 13; Length 243
Pred. No. 2.15e-34;
31; Mismatches 48; Indels
                                                                                                                                                                           Last sequence update)
Last annotation update)
ISOFORM A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     127 127
127 AA; 14478 MW; 10E2842D CRC32;
                                                                                                     243 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  127 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-MAY-1997 (TrEMBLrel. 03, Created)
01-MAY-1997 (TrEMBLrel. 03, Last seque
01-NOV-1999 (TrEMBLrel. 12, Last annof
FIBROBLAST GROWTH FACTOR 12 (FRAGMENT)
                                                                                                                                                        Created)
                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PROSITE; PS00247; HBGF_FGF; 1.
                                                                                                                                                   01-NOV-1999 (TrEMBLrel. 12,
01-NOV-1999 (TrEMBLrel. 12,
01-NOV-1999 (TrEMBLRel. 12,
FIBROBLAST GROWTH FACTOR 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20.28;
Similarity 34.68;
44; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity 34.4%;
Matches 44; Conservative
                                                                                                   PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens (Human).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          196 SHFVPKPI 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             162 ILFLPLPV 169
160 KAILFLP 166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NON_TER
SEQUENCE
                                                                           T 13
Q9W6A1
                                                                                                                           09W6A1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        T 14
099517
                                                                        RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
ò
                                                                                                     RARAR SCOSSE DE LA LE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        88 88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
```

```
'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESCAN P.Y., "Identification of a fibroblast growth factor 6 (FGF6) gene in a non-mammalian vertebrate: continuous expression of FGF6 accompanies muscle
                                              61 YSSDVFTPECKFKESVFENYYVVYSSTLYRQQESGRAWFLGLNKEGQIMKGNRVKKTKPS 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               81 KRVRRLYCNAGIGFHLQVLPDGRINGVHN-ENQYSLIEISTVERGVVSLYGVRSELFVAM 139
46 LYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYLAMDTDGLL 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            140 NSRGRLYGTTVFHDECKFRESMLPNNYNAYESSVY--RGSYIALNKHGRLKRGKKATTAM 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Oncorhynchus mykiss (Rainbow trout) (Salmo gairdneri).
Bokaryota: Metazoo; Chordata; Craniata; Vertebrata; Actinopterygii;
Neopterygii; Teleostei; Euteleostei; Protacanthopterygii;
Salmoniformes; Salmonidae; Oncorhynchus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 250; DB 13; Length 20
Pred. No. 8.38e-33;
36; Mismatches 47; Indels
                                                                                                                                                                                                                                                                                                                                                                              Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Biochim. Elphys. Acta 1443:305-314(1998).
EMBL: Y16850; CAA76422.1; -.
HSSP: P09038; 1BFF.
FSOSITE; PSO0134; HBGF.FGF; 1.
SEQUENCE 206 AA; 23375 MW; 818267C3 CRC32;
                                                                                                                                                                                                                                                                                                     206 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                FIBROBLAST GROWTH FACTOR' 6-RELATED PROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Search completed: Tue Aug 29 16:08:54 2000 Job time : 65 secs.
                                                                                                                                                                                                                                                                                                                                                       Created
                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                  01-MAY-1999 (TrEMBLrel. 10, 01-MAY-1999 (TrEMBLrel. 10, 01-NOV-1999 (TrEMBLrel. 12,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 20.1%;
Best Local Similarity 31.5%;
Matches 40; Conservative
                                                                                                                                                                                                                                                                                                     PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   fiber hyperplasia.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                99096461.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A MEDLINE; 99096461
                                                                                                                                                                                                162 ILFLPLP 168
                                                                                                                                                 121 SHFVPKP 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    198 TVTHFLP 204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 160 KAILFLP 166
                                                                                                                                                                                                                                                                                                                                                                            01-MAY-1999
01-NOV-1999
```

*****	(TM)	****
*******	· <del></del>	****
******	[]]	******
在全种的 医克格勒氏 医克格氏 医克格勒氏 医克格勒氏 医克格勒氏 医克格勒氏 医克格勒氏 医克格氏 医克格氏 医克格氏 医克格氏 医克格氏 医克格氏 医克格氏 医克格		<b>化基础存储存储存储存储存储存储存储存储存储存储存储存储存储存储存储存储存储 医非非常性神经神经神经神经神经神经神经神经,是是是这种种的种种的种种的种种的种种的种种的种种的种种的种种的种种的种种的种种的种种的</b>
******	_	******
*****		******
*******		******
****	<u>                                     </u>	******
******		******
* * *		***

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

protein - protein database search, using Smith-Waterman algorithm MPsrch\_pp

Tue Aug 29 16:13:31 2000; MasPar time 8.08 Seconds 615.683 Million cell updates/sec Run, on:

ular output not generated.

>09-121-017B-27 (1-2107 from US09121017B.pep 1522 1 MSRGAGRVQGTLQALVFLGV......PRTHYGQKAILFLPLPVSSD 210

Description: Perfect Score:

Sequence:

PAM 150 Gap 11 Scoring table:

188963 segs, 23686106 residues Searched:

Minimum Match 0% Listing first 45 summaries Post-processing:

a-geneseq36 1:geneseqp Database:

Mean 32.362; Variance 134.055; scale 0.241 Statistics: Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

			۰					
Result	ult		Query					
Î	<u>و</u> ر	Score	Match	Length	图	ឧ	Description .	Pred. No.
Š	-	984	64.7	140	7	R25914	Human acidic fibroblas-	- 5.88e-86
	~	984	64.7	140	-	R34497	Hullian actdie Ptbroblas	
	ო	984	64.7	140	Н	P90068	Human acid fibroblast	5.88e-86
	4	984	64.7	140	Н	R74647	Human recombinant aFGF	5.88e-86
	'n	984	64.7	140	-	W04806	Human acidic fibroblas	5.88e-86
	9	984	64.7	140	-	P70995	Sequence of human prot	5.88e-86
	7	984	64.7	141	-	R10527	Human acidic fibroblas	5.88e-86
	۵	984	64.7	151	-	R05789	Human aFGF encoded by	5.88e-86
	σ	984	64.7	154	7	W92283	Human beta-endothelial	5.88e-86
	10	984	64.7	154	-	W04805	Human beta-endothelial	5.88e-86
	11	984	64.7	154	П	W06816	Human endothelial cell	5.88e-86
	12	984	64.7	154	٦	W75414	Human beta-endothelial	5.88e-86
	13	984	64.7	155	П	P94037	Human acidic fibroblas	5.88e-86
	14	984	64.7	155	Н	R70812	FGF-1.	5.88e-86
	15	984	64.7	155	٦	P70482	Sequence encoded by co	5.88e-86
	16	984	64.7	155	-	R80776	Fibroblast growth fact	5.88e-86
	11	984	64.7	155	Н	W53022		5.88e-86
	18	984	64.7	155	٦	W75711	Fibroblast growth fact	5.88e-86
	19	984	64.7	155	Н	W75415	Human endothelial cell	5.88e-86
	20	984	64.7	155	~	W92291	Human endothelial cell	5.88e-86
	21	984	64.7	165	~	R05785	Human bECGF encoded by	5.88e-86
	22	984	64.7	168	-	W06818	Human endothelial cell	
	23	983	64.6	134	н	W75413	Human alpha-endothelia	-

٠,٠	Human aipna-endothella 7.436-86 Human endothellal cell 9.80e-85	Fibroblast growth fact 7.75e-85	inal residue d 1.63e-83	ein #2. 1.63e-83	Recombinant human Alal 8.41e-83	ly93) aFGF ana 8.41e-83	Fibroblast growth fact 2.71e-82	ein #3. 2.82e-81	N-terminal residue 2.82e-81	Human acidic fibroblas 1.51e-79	Bovine acidic fibrobla 3.85e-79	Bovine recombinant aFG 3.85e-79	Brain-derived acidic f 3.85e-79	Bovine fibroblast grow 3.85e-79	Bovine acidic Fibrobla 3.85e-79	Human acidic fibroblas 3.85e-79	Recombinant human muta 6.15e-79	Recombinant bovine Ala 5.05e-78	Bovine (Ala47,Gly93) a 5.05e-78	Chimeric acid/basic fi 2.06e-77
Нимар	WO48U/ Human at		R11327 9 N-terminal	R25418 aFGF mutein #2.	R25570 Recombin	W00561 Human (Gly93)		R25419 aFGF mutein #3	R11328 12 N-ter							R25915 Human ac	P90074 Recombin	R25569 Recombin	W00560 Bovine (	W01747 Chimeric
٦,		-	-	-	,-	-	-	-	-	-	Н	-	-	-	-	-	Н	-	1	Н
134	135	156	132	132	155	155	140	129	129	154	140	140	140	140	140	140	154	141	141	136
64.6	63.0	63.9	63.1	63.1	62.5	62.5	62.3	61.6	9.19	. 5.09	60.2	60.2	60.2	60.2	60.3	60.2	60.1	59.5	. 59.5	59.1
983	972	973	960	960	953	953	948	938	938	921	917	917	917	917	917	917	912	906	906	900
24	7 7 7 8	27	28	29	30	31	32	33	34	35	36	37	38	33	40	41	42	43	44	45

### ALIGNMENTS

RESULT ID R	LT 1 R25914 standard; peptide; 140 AA.
AC	R25914;
텀	26-JAN-1993 (first entry)
OE	Human acidic fibroblast growth factor.
ΚM	viral infections; viruses; FGF; herpes simplex virus; HSV-1; HSV-2;
ΚM	herpes varicella; herpes zoster; cytomegalovirus; influenza;
ΚM	human respiratory syncytial virus; Semliki Forest virus; HIV;
ΚM	human immunodeficiency virus; Moloney Sarcoma virus.
SO	Homo sapiens.
PN	EP-497341-A.
PD	05-AUG-1992.
PF	30-JAN-1992; 101541.
PR	31-JAN-1991; GB-002145.
PR	09-JAN-1992; GB-000410.
ΡA	(FARM ) FARMITALIA ERBA SRL CARLO.
ΡΙ	Battistini C, Carminati P, Garofano L, Mazue G, Unqheri D;
DR.	
PT	Synergistic antiviral composition contains BFGF and sulphated
PT	polysaccharide - for treating viral infections e.g. HSV-1 and -2,
ΡŢ	cytomegalovirus, HIV, influenza virus etc.
PS	Disclosure; Page 4; 20pp; English.
ပ္ပ	This sequence represents acidic fibroblast growth factor (aFGF).
႘	aFGF, or its fragments may be used in a synergistic compsn. with an
႘	antivirally active sulphated polysaccharide, and one or more
႘	excipients. The compsn. may be used to control herpes simple: virus
႘	(HSV-1 or -2) herpes varicella/zoster; cytomegalovirus; influenza;
ပ္ပ	human respiratory syncytial virus; Semliki Forest virus; H.V or
႘	Moloney Sarcoms virus. The combination of aFGF with sulphased
႘	polysaccharide is found to have a greater antiviral activ: y than
႘	expected for an additive effect. See also R25913-5.
g	Sequence 140 AA;

Score 984; DB 1; Length 142; Pred. No. 5.88e-86; 1; Mismatches 0; Indel: 0; Gaps Query Match
Best Local Similarity 99.3%;
Matches 134; Conservative

ö

g ò g

GQKAILFLPLPVSSD 140 126

ò q

R34497;

ò

```
76 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 135
                                  66 AMDIDGLLYGSQIPNEECLFLERLEENHYNIYISKKHAEKNWFVGLKKNGSCKRGPRIHY 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            76 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 66 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 W04806 standard; Protein; 140 AA.
W04806;
29-DEC-1996 (first entry)
Human acidic fibroblast growth factor.
Endothelial cell growth factor; ECGF; blood vessel; regeneration;
Endothelial cell growth factor; score; conservation;
FGF; fibroblast growth factor; ss.
Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               New recombinant human acidic fibroblast growth factor - used to promote cell growth, to promote wound healing, for vascular grafts and blood vessel repair
claim 2: Column 30: 25pp; English.
Oligonucleotides were synthesized on the basis of the amino acid sequence of bovine acidic fibroblast growth factor (aFFF) and used to produce a synthetic gene (given in Q88233) incorporating codons preferred by E. coli or mammalian cells, unique cloning sites, etc. This synthetic gene was mutagenized to obtain a gene encoding a human recombinant aFGF (R74647) having activity sequence 140 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      136 AMDIDGLLYGSQIPNEECLFLEFLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY
                                                                                                                                                                                                                                                           25-SEP-1995 (first entry)
Human recombinant aFGF.
Acidic fibroblast growth factor; aFGF; vulnerary; angiogenesis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Thomas KA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gimenez-Gallego G, Kelly LJ, Linemeyer DL, WPI; 95-138983/18.
                                                                                                                                                                                                           T 4
R74647 standard; protein; 140 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity 99.3%;
Matches 134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              126 GQKAILFLPLPVSSD 140
                                                                                                                                 11-JUL-1986; US-884460.

04-JUN-1987; US-054991.

04-MAY-1988; US-190293.

08-FEB-1991; US-654397.

25-SEP-1991; US-765472.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        126 GOKAILFLPLPVSSD 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25-SEP-1992; US-951365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (MERI ) MERCK & CO INC
                                                                                                                                                                                                                                                                                                                                       Homo saptens.
US5401832-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                   30-MAY-1986;
                                                                                                                                                                                                                                                                                                                                                                                                                                  12-SEP-1985;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                     mitogen.
                                                                                                                                                                                                                                            R74647;
                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NW KW CON KW
                              g
                                                                         à
                                                                                                            g
                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                   30-MAR-1993.
30-MAR-1991; 127435.
31-MAY-1990; JP-143388.
31-MAY-1990; JP-143388.
31-MAY-1990; JP-143388.
WPI: 93-139564/17.
WPI: 93-139564/17.
FGF mutein prepn. useful for therapy of burn or thrombosis - by contg. DNA encoding FGF mutein
Disclosure: Page 3: 23pp; Japanese.
The invention covers muteins of FGF (esp. bFGF) which contain at least one glycosylation site. The muteins can be used to treat burns and thrombosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                66 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Disclosure; page 4; 36pp; English.
Amino acid sequence of human acidic fibroblast growth
factor (aFGF). The patent claims mutant forms which have
increased biological activity with(out) heparin, and promote
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mutant acidic fibroblast growth factor used for promoting repair of soft tissue, musculoskeletal tissue or vascular or nerve tissue and plasminogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 984; DB 1; Length 140;
Pred. No. 5.88e-86;
1; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 984; DB 1; Le
Pred. No. 5.88e-86;
1; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1-NOV-1989 (first entry)
Human acid fibroblast growth factor
Human acidic fibroblast growth factor; mutant.
                                                                                                                                                 aFGF; mutein; glycoslation site; glycoprotein
                                                                                                            06-AUG-1993 (first entry)
Human acidic Fibroblast Growth Factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    n 3
P90068 standard; protein; 140 AA.
                                                    T 2
R34497 standard; protein; 140 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Thomas Jnr KA, Linemeyer DL; WPI; 89-167092/23.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 64.78;
99.38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ch 64.7%;
1 Similarity 99.3%;
134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        126 GOKAILFLPLPVSSD 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14-OCT-1988; 202306.
22-OCT-1987; EP-244431.
(MERI) Merck and Co.
196 GOKAILFLPLPVSSD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
Matches 134; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                140 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   140 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          activator prodn.
                                                                                                                                                                      sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cell growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14-JUN-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
```

RESULT

g

Sequence

ò g à g ò

ស្តន្តន

ö

0; Gaps

```
Isolated, purified, biologically active bovine beta endothelial cell growth factor - useful to regenerate or treat damaged blood vessels bisclosure; Fig 8: 28pp; English.

Bovine beta-endothelial cell growth factor (beta-ECGF; W0399) having a mol.wt. of 20 kD can be purified at least 16300 fold from bovine brain using heparin-Sepharose affinity chromatography. ECGF is useful for, among other purposes, diagnostic applications and has potential in the treatment of damaged blood vessels or other endothelial cell-lined structures.

Human ECGF (737503) or fragments may be obtained using oligonucleotides (737504 to 737508 to 737509) whose design is based on the sequence of bovine alpha- and beta-ECGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            136 AMDIDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAERNWFVGLKKNGSCKRGPRTHY 195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                76 ANYKKPRLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        66 AMDIDGLLYGSQIPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRIHY 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13-JUN-1991 (first entry) Sequence of human proteinaceous factor (PFI) with mitogenic activity. Cell growth promoter; mitogen; vascularisation; wound healing. Hemo saplens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Whis 8'-18'05'95'41.

Mitogenic polypeptide isolated from human brain tissue - useful for increasing vascular effect in eq wound healing, or generating endothelial cell linings for vascular prostheses, etc. [Claim 3; Page 1; 31pp; English.

The PF of the invention was obtd. from human brain tissue. It has a mol. wt. of 15,200'-16,500 (pref. 15,61e-16,056) and has a high affinity for heparin. PF1 and fragments are useful for promoting prowth of mesoderm-derived cells or neuroectoderm-derived cells and generating endothelial cell linings for vascular prostheses (all Sequence 140 AA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  64.7%; Score 984; DB 1; Length 140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 984; DB 1; Le
Pred. No. 5.88e-86;
1; Mismatches 0;
                                                                                                                                                            RHON ) RHONE POULENC RORER PHARM INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          n 6
P70995 standard; protein; 140 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               14-02T-1987. 301969.
06-WAR-1986, US-838096.
(HARD ) HARVARD COLLEGE.
LODD RR, Harper JW, Strydom DJ;
WPI; 87-28995/41.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /label- Asp-OH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity 99.3%;
Matches 134; Conservative
                                                       03-MAR-1986; US-835594.
18-DEC-1987; US-134499.
29-APR-1991; US-693079.
27-NOV-1991; US-799859.
03-NOV-1994; US-334884.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       126 GOKAILFLPLPVSSD 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               196 GQKAILFLPLPVSSD 210
                                                                                                                                                                               Burgess W, Maciag T;
WPI; 96-412132/41.
N-PSDB; T37503.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_difference 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               140 AA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EP-241136-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           14-0CT-1987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Anti-acid antibody, for cancer diagnosis, etc. - is obtd. by anti-acid antibody, for cancer diagnosis, etc. - is obtd. by using complex of partial peptide(s) of acid fibroblast growth a factor and protein as antigen.

Disclosure; Fig 1: 19pp; Japanese.

Disclosure; Fig 1: 19pp; Japanese.

The was deduced from a gene used to produce recombinant aFGF.

Peptides derived from the protein, esp. from A-D can be used to as mitgens to produce anti-aFGF antibodies. The peptides must comprise B-10 continuous AAS from A or B (claims 5 and 6 resp.),

7-10 continuous AAS from C (claim 7), or 8-9 continuous AAS from D (claim 8). The ABS can be used for immunochemically measuring aFGF, and for purifying aFGF. They are useful as reagents in the diagnosis of various cancers or diseases of the CNS. Purified aFGF has wound healing and nerve cell proliferating properties.
                                                                                                                                                                                                                                                                                     66 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 66
                                                                                                                          GNYKKPKLLYCSNGGHFLRILPDGTVDGTKDRSDQHIQLQLSAESVGEVYIKSTETGQYL 65
                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ő
                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 141;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 984; DB 1; Length 141
Pred. No. 5.88e-86;
1; Mismatches 0; Indels
                                                              Indels
Pred. No. 5.88e-86;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15-APR-1991 (first entry)
Human acidic fibroblast growth factor gene.
aFGF; antibody; antigen; cancer; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   R10527 standard; Protein; 141 AA. R10527;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                03-JUL-1989; 172542.
04-JUL-1988; JP-166275.
03-JUL-1989; JP-172542.
(TAKE.) TAKEDA CHEMICAL IND KK.
WPI; 91-040150/06.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 64.7%;
Best Local Similarity 99.3%;
Matches 134; Conservative
                             Best Local Similarity 99.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2. .12
/label= A
56. .67
/label= B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    104. .114
/label= C
132. .141
/label= D
                                                           134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                 126 GOKAILFLPLPVSSD 140
                                                                                                                                                                                                                                                                                                                                                                                                                  N-PSDB; Q10399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        J02306996-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            region
                                                                                                                                                                                                                                                                                                                                                                                                                                         196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 aFGF;
                                                                                                                      φ
                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Key
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NATION SOLVE SOLVE
                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                          셤
                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
```

GOKAILFLPLPVSSD 210 GOKAILFLPLPVSSD 141

127 196

g

ò

ö

g

ö

Gaps

; 0

Š

```
DNA encoding a cleavable signal peptide and an endothelial cell growth factor ruseful for producing recombinant endothelial cell growth factor proteins care for most signal for producing recombinant endothelial cell growth factor respective and plasmine acid sequence of human beta-endothelial cell growth factor (EGGF). The invention is directed to DNA encoding alpha or beta-EGGF and plasmids comprising the DNA sequences. The DNA encodes a cleavable signal peptide and an EGGF, where removal of the signal peptide EGGF proteins, which can be used in treatments to repair or regenerate blood vessels or other structures lined with endothelial cells.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Isolated, purified, biologically active bovine beta endothelial cell growth factor.

- useful to regenerate or treat damaged blood vessels bisclosure; Fig'8: 28pp; English and the beta endothelial cell growth factor (beta-ECGF; W03999) having a mol.wt. of 20 kD can be purified at least 16300 fold from bovine brain using heparin-Sepharose affinity chromatography. ECGF is useful for, among other purposes, diagnostic applications and has potential in the treatment of damaged blood vessels or other endothelial cell-lined structures.

Human ECGF (137503) or fragments may be obtained using oligonucleotides (137504 and 137508 to 137509) whose design is based on the sequence of bovine alpha- and beta-ECGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                         80 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 79
                                                                                                                                                                                                                                                                                                                                                                                                                   20 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       W04805;
29-DEC-1996 (first entry)
Human beta-endothelial cell growth factor.
Endothelial cell growth factor; ECGF; blood vessel; regeneration;
heparin-Sepharose affinity chromatography; probe; oligonucleotide;
FGF; fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 984; DB 1; Length 154;
Pred. No. 5.88e-86;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 984; DB 1; Length 154 Pred. No. 5.88e-86; 1; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                      1; Mismatches
    Drohan WN, Jaye M, Maciag T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (RHON ) RHONE POULENC RORER PHARM INC. Burgess W, Maciag T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               T 10
W04805 standard; Protein; 154 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 64.7%;
Best Local Similarity 99.3%;
Matches 134; Conservative
                                                                                                                                                                                                                                                                                                                           tch 64.7%;
al Similarity 99.3%;
134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                196 GQKAILFLPLPVSSD 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         140 GOKAILFLPLPVSSD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    03-MAR-1986; 835594.
03-MAR-1986; US-835594.
18-DEC-1987; US-134499.
29-APR-1991; US-799859.
27-NOV-1994; US-334884.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Burgess W, Maciag T;
WPI; 96-412132/41.
N-PSDB; T37503.
                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity
    Burgess W, Drohan
WPI; 99-069734/06.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US5552528-A.
03-SEP-1996.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ô
                                                                                                                                                                                                                                                                                                                                                                                                          Gene encoding human acidic fibroblast growth factor -
incorporates useful restriction sites at frequent intervals to
facilitate cassette mutagenesis of specified regions.
Claim 2; Fig 3a. 12pp; English.
C The synthetic aRGF gene incorporates useful restriction sites at
frequent intervals to facilitate the cassette mutagenesis of
requent intervals to facilitate the cassette mutagenesis of
selected regions. Also included are flanking sites to simplify
the arGF mol. acts in a cascade effect to control endothelial cell
activity either co-ordinately through synergistic effects or via
independent routes. The regulation of endothelial cells is essential
in the protection of arteries, veins and capillaries from the effect
of thrombogenesis. Their stimulation and control by these factors is
also thought to be important in the development of tumours and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   W92283;
20-APR-1999 (first entry)
Human beta-endothelial cell growth factor (ECGF) protein sequence.
Endothelial cell growth factor; ECGF; cleavable; recombinant; repair;
regenerate; blood vessel; endothelial cell; human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  71 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      136 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                               /note= "sites corresp. to two stop codons of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 151;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Indels
                                                               Human aFGF encoded by synthetic gene.
Acidic fibroblast growth factor; aFGF; thrombogenesis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 984; DB 1; Pred. No. 5.88e-86;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (RHON ) RHONE-POULENC RORER PHARM INC.
                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                   the DNA sequence"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 W92283 standard; protein; 154 AA.
R05789 standard; Protein; 151
                                                                                                                                                                                                                                                                           08-AUG-1988; 018775.
08-AUG-1988; GB-018775.
(BRBT-) Brit Bio-Tech Ltd.
Davies JA, Johnson ID;
WPI; 90-109882/15.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    64.78;
                                             (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GOKAILFLPLPVSSD 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           atherosclerosis; tumors.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-134499.
US-693079.
US-799859.
US-334884.
US-472964.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            840088.
US-743261.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
                                                                                                                                                                        misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       atherosclerosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens.
US5849538-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             134;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29-APR-1991;
27-NOV-1991;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                04-NOV-1996;
03-MAR-1986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          03-NOV-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                07-JUN-1995;
                                        22-AUG-1990
                                                                                                                                                                                                                                          GB2223496-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15-DEC-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             18-DEC-1987
                                                                                                                                  Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
```

131

셤

g à

ð

ò

Gaps

;

Length 154;

140

g

à

D S E B E S (E

g

```
11-JAN-1989.
06-JUL-1988; 306158.
07-JUL-1987; US-70797.
(BIOT-) Biotechn Res Assoc.
Fiddes JC, Abraham JA, Protter A;
WPI; 89-009785/02.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LT 13
P94037 standard; protein; 155 AA.
P94037;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Match 64.7%;
Local Similarity 99.3%;
les 134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            196 GQKAILFLPLPVSSD 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             140 GOKAILFLPLPVSSD 154
                                                                                                      29-APR-1991; US-693079.
27-NOV-1991; US-799859.
03-NOV-1994; US-334884.
07-JUN-1995; US-472964.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             See also P94038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N-PSDB; N93086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens.
EP-298723-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Seguence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        81
  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                   80 AMDIDGLLYGSQIPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRIHY 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          76 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Talm 1; Column 16; 22pp; English.

Human recombinant endothelial cell growth factors (ECGF) beta (W06816) and alpha (W06817) differ only at their N-terminal ends. They can be produced in transformed prokaryotic or eukaryotic host from the complete human ECGF cDNA (14598). Large quantities of the ECGFs are produced by culturing the host cells and recovering the ECGFs are produced by culturing the host cells and recovering the proteins. ECGFs have utility in the growth and amplification of endothelial cells in culture. They can potentially be used to structures, and also have diagnostic appins.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Recombinant human endothelial cell growth factors - for treating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ouery Match 64.7%; Score 984; DB 1; Length 154; Best Local Similarity 99.3%; Pred. No. 5.88e-86; atches 134; Conservative 1; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        W75414;
W75414;
W2-MAR-1999 (first entry)
Human beta-endothelial cell growth factor.
Human, endothelial cell growth factor.
Human, bendothelial cell growth factor;
Endothelial cell growth factor;
Mybridisation;
Mybri
                                                                                                                                                                                                                                                                                                                                                                                  17-MAR-1997 (first entry)
Human endothelial cell growth factor-beta.
Endothelial cell growth factor-beta; ECGF-beta.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Jaye M, Maciag T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (RHON ) RHONE POULENC RORER PHARM INC
Burgess W, Drohan WN, Jaye M, Macis
WPI: 96-505421/50
N-PSDB: T45983.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       W75414 standard; protein; 154 AA.
                                                                                                                                                                                                                                                                                                                                 W06816 standard; Protein; 154 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      etc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GOKAILFLPLPVSSD 210
                                                                                                                                                               GOKAILFLPLPVSSD 154
                                                                                                                                                                                                                  196 GOKAILFLPLPVSSD 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    140 GOKAILFLPLPVSSD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   damaged blood vessels,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    29-APR-1991; US-693079
27-NOV-1991; US-799859
03-NOV-1994; US-334884
07-JUN-1995; US-472964
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 03-MAR-1986; 835594.
03-MAR-1986; US-835594
18-DEC-1987; US-134499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  154 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens.
US5571790-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ouery Match
                                                                                                                                                                                                                                                                                                                                                           W06816;
```

196

g ò

윱

ð

RESULT ID WI AC WI DT 001 DE HU KW HU KW hy OS HC

```
RHONE POLIENC RORER PHARM INC.

Burgess W, Drohan WN, Jaye M, Maciag T;

Burgess W, Drohan WN, Jaye M, Maciag T;

RMPI; 98-594032/50.

To compositions for promoting wound healing - containing endothelial

compositions for promoting wound healing - containing endothelial

real growth factor polypeptides

claim 1; Column 16; 23pp; English.

This sequence represents the amino acid sequence of the mature human

beta-endothelial cell growth factor (b-ECGF). This amino acid sequence

is identical to the alpha-ECGF but the beta sequence contains an extra

No N-terminal amino acids. The sequence was isolated from a human brain

the compositions for promoting wound healing. ECGF protein can be used in

compositions for promoting wound healing. ECGF is also used to grow
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   80 AMDIDGLLYGSQIPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRIHY 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       136 AMDIDGLLYGSQIPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AMDIDGLLYGSQIPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             76 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Match 64.7%; Score 984; DB 1; Length 154 Local Similarity 99.3%; Pred. No. 5.88e-86; Conservative 1; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 984; DB 1; Length 155
Pred. No. 5.88e-86;
1; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Recombinant DNA encoding new fibroblast growth factor analogues - useful eg for accelerating wound healing and to control neovascularisation.
Disclosure; p; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       25-UUN-1990 (first entry)
Human acidic fibroblast growth factor.
Acidic fibroblast growth factor.
```

```
Search completed: Tue Aug
Job time: 26 secs.
  ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        පු
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
136 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 195
                                                                                                                                                       FGF-1. Fibroblast growth factor; cytotoxic conjugate; fusion protein; saporin; cytostatic; tumor; diabetes; rheumatoid arthritis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             81 AMDIDGLLYGSQIPNEECLFLERLEENHYNIYISKKHAEKNWFVGLKKNGSCKRGPRIHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     136 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVCLKKNGSCKRGPRTHY 195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Disclosure; Page 108-109; 128pp; English.

Novel fusion proteins comprise FGF linked to saporin. FGF-1 to -9 may be used, pref. FGF-1 (R70812), FGF-5 (R70813), FGF-7 (R70814) or FGF-8 (R70815) muteins, in which at least 1 Cys residue is replaced by conservative Ser substitutions. The fusion proteins are potent cytocidal agents to cells bearing the FGF receptor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 95-082038/11.

New monogenous preparations of cytotoxic conjugates and DNA -
contain fibroblast growth factors and cytotoxic agents for
treating FGF conditions such as tumours, diabetes and rheumatoid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            P70482 standard; Protein; 155 AA.
P70482;
13-MAY-1991 (first entry)
Sequence encoded by complete cDNA sequence of human endothelial
cell growth factor (ECGF).
Endothelial cell regeneration; blood vessel regeneration.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 984; DB 1; Length 155;
Pred. No. 5.88e-86;
1; Mismatches 0; Indels
                                                                                                                                                                                                                                            /note= "Cys may be replaced by Ser"
                                                                                                                                                                                                                                                                      /note= "Cys may be replaced by Ser"
                                                                                                                                                                                                                                                                                                                                                          (PRIZ-) PRIZM PHARM INC.
(WHIT-) WHITTIER INST DIABETES & ENDOCRINOLOGY
Baird AJ, Lappi DA, Sosnowski BA;
                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         16. .21
/label= Acidic FGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     22. .155
/label- Alpha ECGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2. .15
/label= Beta ECGF
                                                                                                             R70812 standard; protein; 155 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 64.7%;
Best Local Similarity 99.3%;
Matches 134; Conservative
                                                                                                                                          01-SEP-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            141 GQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            141 GOKAILFLPLPVSSD 155
                                           196 GOKAILFLPLPVSSD 210
                                                                                                                                                                                                                                                                                                                               02-AUG-1993; US-099924.
29-OCT-1993; US-145829.
                                                                                                                                                                                                                                                                                                   09-FEB-1995.
27-JUL-1994; U08511
                                                                                                                                                                                                                                                        misc_difference 132
                                                                                                                                                                                                                             misc_difference 31
                                                                                                                                                                                                  Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                             arthritis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                              R70812;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein
                         a
                                                                                                                                                                                                                                                                                                                                6(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŏ
```

29 16:13:57 2000

```
ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         81 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Human endothelial cell growth factor - produced by recombinant DNA techniques, useful for wound healing Example; Fig 8; 45pp; English.

Example; Fig 8; 45pp; English.

To screen the human brain stem CDNA library for clones contg. ECGF inserts, a specific oligonucleotide was designed. This oligonucleotide was based upon a partial AA sequence analysis of the amino terminus of ECGF (see P70480 and P70481). Fig 3s sets forth for comparison the AA sequence of cyanogen bromide-cleaved bovine alpha and beta ECGF (P70834). The two clones that were isolated, ECGF clones 1 and 29, were analysed in further detail. The nucleotide sequence of these clones and the AA sequence deduced from the nucleic acid sequence is shown in Fig 8 (see N70788 and P70482).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 984; DB 1; Length 155
Pred. No. 5.88e-86;
1; Mismatches 0; Indels
                                                                                                                                                                                                     Jaye M, Burgess W, Maciag T, Drohan W; WPI; 87-264128/37.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 64.7%;
Best Local Similarity 99.3%;
Matches 134; Conservative
                                                                                 (MELO-) MELOY LAB INC. (RORE ) RORER BIOTECHN INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           141 GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             000425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    155 AA;
                                                                                                                                           RORER.
                                                                                                                                                                                                                                                              N-PSDB; N70788
02-MAR-1987;
                              03-MAR-1986;
                                                         26-MAR-1987
                                                                                                                                           (RORE-) ROR
BIOTECH INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
```

(MT)
* **
· 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

-.MPsrch\_pp protein - protein database search, using Smith-Waterman algorithm Tue Aug 29 16:12:04 2000; MasPar time 12.61 Seconds 785.806 Million cell updates/sec no unc

abular output not generated.

>US-09-121-017B-27
[1-210}—from-0809121017B.pep
1522
1 MSRGAGRVQGTLQALVFLGV......PRTHYGQKAILFLPLPVSSD 210 Description: Perfect Score: Sequence:

PAM 150 Gap 11 Scoring table:

142080 seqs, 47172406 residues Searched:

Post-processing: Minimum Match 0% Listing first 45 summaries

pir64 1:pir1 2:pir2 3:pir3 4:pir4 Database:

Mean 44.620; Variance 79.868; scale 0.559 Statistics: Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

Pred. No.	2.00e-192	1.76e-188	3.00e-188	3.00e-188	3.09e-185	6.69e-177	1.14e-176	2.34e-174	1.66e-127	1.00e-122	6.67e-87	1.45e-85	1.45e-85	8.70e-84	8.70e-84	5.21e-84	1.44e-81	1.43e - 79	1.72e-74	7.13e-55	2.64e-49	2.64e-49	2.17e-47
Description	acidic fibroblast aro	fibroblast	fibroblast			acidic fibroblast gro	acidic fibroblast gro	fiblobrast growth fac	fibroblast growth fac	fibroblast growth fac	basic fibroblast grow	fibroblast growth fac	embryonic Fibroblast	fibroblast growth fac	fibroblast growth fac	embryonic fibroblast							
QI	A33665	A60721	D37360	S04147	JH0476	GKBOA	A60130	JW0055	S14192	S20102	A48834	S00185	GKBOB	C37360	A31674	A32398	S31622	A40117	146711	S54407	S66486	A48137	S23595
08	: -	н	~	7	~	Н	~	~	7	7	۷.	ч	П	~	~	(7)	~	ч	7	7	7	~	7
Length	155	155	155	155	152	155	155	155	208	208	189	146	157	154	154	210	164	155	137	192	. 208	208	187
% Query Match	64.7	63.5	63.5		62.6	60.2	60.2	59.5	46.1	44.7	34.3	33.9	33.9	33.4	33.4	33.4	32.7	32.1	30.6	24.7	23.0	23.0	22.4
Score	984	296	996	996	953	917	916	906	702	681	522	516	516	208	508	509	498	489	466	376	350	320	341
Result No.	-	7	m	4	S	9	7	Φ	6	10	11	12	13	14	15	16	17	18	19	20	21	22	23

7 53e - 4 4 5 6 6 6 7 1 1 4 6 6 6 4 4 5 6 6 6 7 1 1 4 7 6 6 6 7 1 1 4 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7	2.53e-24
fibroblast growth fac fibroblast growth fac fibroblast growth fac HST protein - bovine keratinocyte growth fac keratinocyte growth fac keratinocyte growth fac keratinocyte growth fac fibroblast grow	fibroblast growth fac
JC5941 JC5940 JC5940 JC5710 JC5710 JC420 JC48610 S26049 A36207 S88144 TVHUF5 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC7627 JC	S04742
	п
20000000000000000000000000000000000000	239
<b>Რ₩</b> ₳ᲔᲓᲢ₳₩₩₫₽₽₩₳₽₩₩₩₩	0
222 222 220 220 220 220 230 240 250 250 250 250 250 250 250 250 250 25	15.
228 28 28 28 28 28 28 28 28 28 28 28 28	229
40000000000000000000000000000000000000	45
	•

### ALIGNMENTS

	RESULT 1	
	ENTRY	A33665 #tvpe_complete
	TITLE	acidic fibroblast growth factor 1 precursor - human
	ALTERNATE_NAMES	beta-ECGF; endothelial cell growth factor beta;
		heparin-binding growth factor 1
	ORGANISM	#formal_name Homo sapiens #common_name man
	DATE	10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change
	SINCESSESSIVE	TO GOLD TOTAL . MADONE MARKET THOUSE COLORS
	ACCESSIONS	\$35536; B3210; S1021/; A43004; B44002; UNU/V/; S35333.); \$35536; I39413; A23553; A24820; A24243; A24301; A26386;
		Absose
	KEFEKENCE	
	#authors	<pre>Mergia, A.; Tischer, E.; Graves, D.; Tumolo, A.; Miller, J.; Gospodarowicz, D.; Abraham, J.A.; Shipley, G.D.; Fiddes,</pre>
		d.C.
	#journal	Biochem. Biophys. Res. Commun. (1989) 164:1121-1129
	#title	Structural analysis of the gene for human acidic fibroblast
	#orose-referen	#cross-references MITTH-90073637
	1010101101011	1000 total
	#accession ###	A33665
	**************************************	
	##residues	1-155 ##label MER
	##CIOSS-re	##cross-reterences GB:M30491
•	REFERENCE	
	#authors	Wang, W.P.; Lehtoma, K.; Varban, M.L.; Krishnen, I.; Chiu, I.M.
	#iournal	Mol. Cell. Biol. (1989) 9:2387-2395
	#title	coding for human class 1
	1	growth factor and its expression in fetal tssues.
	*cross-referer	ces MUID:89343957
	#accession	A32316
	##molecule_type DNA	
	##residues	WAN
	##cross-re	##cross-references GB:M23087; NID:9183875; PIDN:AAA52638.1; PID:9386768
	REFERENCE	
	#authors	wang, w.r.; Quick, D.; Balcerzak, S.P.; Needleman, S.w.; Chiu, I.M.
	#iournal	Oncogene (1991) 6:1521-1529
	#title	Cloning and sequence analysis of the human acidic fibroblast
		growth factor gene and its preservation in leukemia
	#Cross-referen	#CTORG-reference MITTD-02010R10
	#accession	S1E217
	##molecule_type DNA	type DNA
	##residues	1-155 ##label WA2
	##cross-references	erences EMBL:M23086
	KEFEKENCE	A4 3804

```
#residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                            #accession
                                                                                                                                                                                                                                                                   #journal
#title
                                                                                                                                                                                                                                fauthors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##residues 1-40 ##label RES ##cross-references GB:M60515; NID:g178226; PIDN:AAA51672.1; PID:g553170; ##cross-references GB:M60516; NID:g178232; PID:g553171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Tessacio type mRNA ##nolecule_type mRNA 1-155 ##label YUY ##residues 1-155 ##label YUY ##ross-references GB:X65778; NID:g396164 ##cross-references GB:X65778; NID:g396165 ##cross-references GB:X65778 ##cros
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Payson, R.A.; Canatan, H.; Chotani, M.A.; Wang, W.P.; Harris, S.E.; Myers, R.L.; Chiu, I.M.
Nucleic Acids Res. (1993) 21:48495
Cloning of two novel forms of human acidic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #authors Yu, Y.L.; Kha, H.; Golden, J.A.; Migchielsen, A.A.J.; Goetzl, E.J.; Turck, C.W.
#journal J. Exp. Med. (1992) 175:1073-1080
#title An acidic fibroblast growth factor protein generated by alternate splicing acts like an antagonist.
#cross-references MUID:92202857
                                                                                                                                                                                                                                                                                                  ##cross-references EMBL:X51943; NID:g32435; PIDN:CAA36206.1; PID:g32436
#authors Chiu, I.M.; Wang, W.P.; Lehtoma, K.
#journal Oncogene (1990) 5:755-762
#title Alternative splicing generates two forms of mRNA coding for human heparin binding growth factor 1.
#cross-references MUID:90265618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Crumley, G.; Dionne, C.A.; Jaye, M. Blochen. Blophys. Res. Commun. (1990) 171:7-13
The gene for human acidic fibroblast growth factor encodes two upstream exons alternatively spliced to the first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A. Biochem. Biophys. Res. Commun. (1986) 138:611-617
The complete amino acid sequence of human brain-derived
                                                                                                                                                                                                                                                                                                                                                                         #authors Jaye, M.; Howk, R.; Burgess, W.; Ricca, G.A.; Chiu, I.M.;
Ravera, M.W.; O'Brien, S.J.; Modi, W.S.; Maciag, T.;
Drohan, W.N.
$ journal Science (1986) 233:541-545
#title Human endothelial cell growth factor: cloning, nucleotide sequence, and chromosome localization.
#cross-references Mold. Recover.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #authors Harper, J.W.; Strydom, D.J.; Lobb, R.R. #journal Biochemistry (1986) 25:4097-4103 #cross-references MUID:86296647 #accession A23553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##molecule_type mRNA
##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##molecule_type protein
##residues 16-155 ##label HAR
                                                                                                                                                                                                                        ##molecule_type mRNA
##residues 1-155 ##label CHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##residues 1-58 ##label PA2
##cross-references GB:L01487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##residues 1-58 ##label PAY ##cross-references GB:L01485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        factor (aFGF) mRNA #cross-references MUID:93181239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         coding exon.
#cross-references MUID:90365758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                              A24662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A23553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A24820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A24662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           835535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            139413
                                                                                                                                                                                        A43804
                                                                                                                                                                                                                                                                   ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #accession
                                                                                                                                                                                            #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PREFERENCE
```

```
#authors Gautschi-Sova, P.; Muller, T.; Bohlen, P.
#journal Blochem. Blophys. Res. Commun. (1986) 140:874-880.
#title Amino acid sequence of human acidic fibroblast growth factor.
#cross-references MUID:87048871
#accession A26386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              : #product fibroblast growth factor 1 #status experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Chavan, A.J.; Haley, B.E.; Volkin, D.B.; Marfia, K.E.; Vetticelli, A.M.; Bruner, M.W.; Draper, J.P.; Burke, C.J.; Middaugh, C.R.
Blochamistry (1994) 33:7193-7202
Interaction of nucleotides with acidic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##molecule_type protein
##residues 16-30,'X',32-38;73-75,'X',77-97,'X',99-101;128-131,'X',
##residues 133-140,'X',142-152 ##label CHA
                                                                                                                                                                           Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A. Blochem. Blophys. Res. Commun. (1986) 135:441-548 Human brain-derived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitogenic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          81 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   76 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gautschi, P.; Frater-Schroder, M.; Bohlen, P.
FEBS Lett. (1986) 204:203-207
Partial molecular characterization of endothelial cell
mitogens from human brain: acidic and basic fibroblast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #label MAT\
#binding_site carbohydrate (Asn) (covalent) #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       alternative splicing; growth factor; heparin binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #length 155 #molecular-weight 17460 #checksum 9243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 984; DB 1; Length 155;
Pred. No. 2.00e-192;
1; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             *superfamily fibroblast growth factor
acidic fibroblast growth factor.
#cross-references MUID:86295741
#accession A24820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            16-30,'X',32-49 ##label GAU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##cross-references GDB:119909; OMIM:131220
#map_position 5q31.3-5q33.2
#introns 57/1; 91/3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type protein
##residues 16-155 ##label GA2.
##experimental_source brain
SNCE A53639
                                                                                       ##molecule_type protein
##residues 16-155 ##label GIM
                                                                                                                                                                                                                                                                                                                                                                          ##experimental_source brain
NCE A91364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            factor (FGF-1).
#cross-references MUID:94271773
#accession A53639
                                                                                                                                                                                                                                                                                                                      *cross-references MUID:86186784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         growth factors. 
#cross-references MUID:86275260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity 99.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GDB:FGF1; FGFA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches 134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  absent
                                                                                                                                                                                                                                                                                                                                                                       ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##molecule_type protein
                                                                                                                                                                                                                                                                                                  activities
                                                                                                                                                   A90122
                                                                                                                                                                                                                                                                                                                                                A24243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A24301
```

ö

#title

```
1-155 ##label MAD
##molecule_type DNA
                    ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CLASSIFICATION
                                                                                                                                                CLASSIFICATION
SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ŋ
                                                                                                                                      #introns
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ournal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                      #dene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
                                                                                                   GENETICS
                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                      음
                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                     임
                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Dev. Biol. (1990) 138:454-463
Isolation of cDNAs encoding four mouse FGF family members and
characterization of their expression patterns during
                                                                                                                                                     hamster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##status preliminary
##molecule_type mRNA
##residues 1-155 ##label HEB
##cross-references GB:M30641; NID:g193284; PIDN:AAA37618.1; PID:g309236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                      cell aFGF/HGBF-I gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hebert, J.M.; Basilico, C.; Goldfarb, M.; Haub, O.; Martin,
                                                                                                                                                                                                                                Hall, J.A.; Harris, M.A.; Malark, M.; Mansson, P.E.; Zhou, H.; Harris, S.E.
J. Cell. Blochem. (1990) 43:17-26
Characterization of the hamster DDT-1 cell aFGF/HGBF-1 gen and CDNA and its modulation by steroids.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           81 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQYL 80
                                                                                 acidic fibroblast growth factor - golden hamster heparin-binding growth factor 1 #formal_name Mesocricetus auratus #common_name golden ha 10.5ep-1999 #sequence_revision 10-Sep-1999 #text_change 10-Sep-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #formal_name Mus musculus #common_name house mouse
17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change
16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                  **Superfamily fibroblast growth factor growth factor; heparin binding #**sength 155 ***#molecular-weight 17403 **checksum 9573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ERENCE JC5231

#authors Madiai, F.; Hackshaw, K.V.; Chiu, I.M.

#authors Gene (1996) 179:231-236

#title Cloning and characterization of the mouse Fgf-1 gene.

#cross-references MUID:97128312

#accession JC5231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 967; DB 1; Length 155;
Pred. No. 1.76e-188;
2; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                      not compared with conceptual translation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             acidic fibroblast growth factor - mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #type complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  embryogenesis.
#cross-references MUID:90201563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 63.5%;
Best Local Similarity 97.0%;
Matches 131; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               D37360; JC5231
                   196 GQKAILFLPLPVSSD 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              196 GOKAILFLPLPVSSD 210
 141 GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            141 GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               aFGF; FGF-1
                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type DNA
##residues 1-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    G.
F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  D37360
                                                                                                                                                                                                                                                                                                                     *cross-references
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ENTRY
TITLE
LIERNATE_NAMES
RGANISM
                                                                                                                                ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                       CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                        ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##Status
                                                                                                                                                                                                                                                                                                                                       #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #accession
                                                                                                                                                                                                                                                                     #journal
#title
                                                                                                                                                                                                                                    #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 journal
                                                                                                                                                                                                 ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
SUMMARY
                                                                                                                                                   ORGANISM
                                                                                 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                  LITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DATE
 용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
```

```
##residues___1-155 ##label GOO
##cross-references EmBL:X14232; NID:956351; PIDN:CAA32448.1; PID:956352
FICATION #superfamily fibroblast growth factor
DS Proveth factor; hepprin binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Goodrich, S.P.; Yan, G.C.; Bahrenburg, K.; Mansson, P.E.
Nucleic Acids Res. (1989) 17:2867
The nucleotide sequence of rat heparin binding growth factor
                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JH0476 #type fragment acidic fibroblast growth factor - pig (fragment) #formal_name Sus scrofa domestica #common_name domestic pig 31-Mar-1992 #sequence_revision 31-Mar-1992 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                          81 AMDTEGLLYGSQTPNEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##cross-references GB:U36456
# This protein is an inducer of neovascularization in anglogenic
disease including atherosclerosis, cancer and inflammatory
                                                                                                                                                                                                                                                                                                                       80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       acidic fibroblast growth factor 1 - rat
heparin-binding growth factor 1
#formal_name Rattus norvegicus #common_name Norway rat
28-Feb-1990 #sequence_revision 28-Feb-1990 #text_change
                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                    21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #molecular-weight 17417 #checksum 9341
                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                      #checksum
                                                                                                                                                                                                                                 Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 155;
                                                                                                                                                                                                                                                                           Indels
                                                                                                                Fgf-1
57/1; 91/3
#superfamily fibroblast growth factor
#length 155 #molecular-weight 17417
                                                                                                                                                                                                                        Score 966; DB 2; LA
Pred. No. 3.00e-188;
3; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 966; DB 2; L. Pred. No. 3.00e-188; 3; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        63.5%; Score 966;
larity 96.3%; Pred. No. 3
Conservative 3; Mismat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #type complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #cross-references MUID:89240051
#accession S04147
                                                                                                                                                                                                                             Query Match 63.5%;
Best Local Similarity 96.3%;
Matches 130; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      141 GQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               196 GOKAILFLPLPVSSD 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             141 GQKAILFLPI.PVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #length 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (HBGF-1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity
Matches 130; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
ORGANISM
DATE
```

```
##residues
                                                                                                                                                      ##residues
                                                                                                                                                                                                                                    #submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #accession
                                                                                                                                                                                                                                                            #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #accession
                                                                                                            #accession
                                                                                                                                                                                                                    #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Halley, C.; Courtois, Y.; Laurent, M. Nucleic Acids Res. (1988) 16:10913 Nucleotide sequence of bovine acidic fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Alterio, J.; Halley, C.; Brou, C.; Soussi, T.; Courtois, Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Heterogeneity of 3' untranslated region of bovine acidic FGF
                                                                                                                                                                                                         ##residues 1.152 ##label SCH ##cross-references EMBL:X60317; NID:g1873; PIDN:CAA42869.1; PID:g1874 ##experimental_source heart ##note the hydrophobic core residues are packed around the ##note
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   acidic fibroblast growth factor precursor - bovine aFGF; eye-derived growth factor II; heparin-binding growth factor I; prostatropin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JH0613; S02102; S02661; S22065; B24663; A94281; S03953; A91010; A24477; B25043; C25043; A25043; A24539; A60884; A37892; B37892; A61198; I46024; A34477; A01385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   81 AMDISGLLYGSQIPSEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRIHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##CIOSS-references EMBL:X13221; NID:9347; PIDN:CAA31610.1; PID:9348
REFERENCE S02661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Renaud, F.; Desset, S.; Bugra, K.; Halley, C.; Philippe,
J.M.; Courtois, Y.; Laurent, M.
Blochem. Biophys. Res. Commun. (1992) 184:945-952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #formal_name Bos primigenius taurus #common_name cattle
13.Aug-1986 #sequence_revision 03-Feb-1994 #text_change
                                                                                                                                                                                                                                                                                                    internal symmetry axis
This protein belongs to the fibroblast growth factor family
TION #superfamily fibroblast growth factor
growth factor; heparin binding
                                     #authors Schmidt, M.; Sharma, H.S.; Schott, R.J.; Schaper, W. #Journal Biochem. Biophys. Res. Commun. (1991) 180:853-859 #title Amplification and sequencing of mRNA encoding acidic #cross-references MUD:92062117
                                                                                                                                                                                                                                                                                                                                                                                                        #region nuclear location signal\
#binding_site heparin (Lys) #status predicted
#length 152 #checksum 1124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 953; DB 2; Length 152;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pred. No. 3.09e-185;
2; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #type complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##molecule_type DNA
##residues 58-155 ##label REN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##molecule_type mRNA
##residues 1-155 ##label HAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          transcripts.
*cross-references MUID:92246990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #cross-references MUID:89083506
#accession S02102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 62.6%;
Best Local Similarity 97.0%;
Matches 128; Conservative
16-Jul-1999
JH0476; S20072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18-Jun-1999
                                                                                                                                                                                          ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       141 GOKAILFLPLPV 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            502102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JH0613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                            CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #authors
#journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #journal
                   ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCESSIONS
                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                    FEATURE 22-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                  KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                P. MMARY
                                                                                                                                                                                                                                                                                                                        COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
```

```
#authors Gimenez-Gallego, G.; Rodkey, J.; Bennett, C.; Rios-Candelore, M.; DiSalvo, J.; Thomas, K.
#journal Science (1985) 230:1385-1388
#title Brain-derived acidic fibroblast growth factor: complete amino acid sequence and homologies.
#cross-references MUID:86070224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #authors Abraham, J.A.; Mergia, A.; Whang, J.L.; Tumolo, A.; Friedman, J.; Hjerrild, K.A.; Gospodarowicz, D.; Fiddes, J.C.
#journal Solence (1986) 233:545-548
#title Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fibroblast growth factor.
#cross-references MUID:86261806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #authors Quinkler, W.; Maasberg, M.; Bernotat-Danielowski, S.; Luethe,
N.; Sharma, H.S.; Schaper, W.
#journal Bur. J. Blochem. (1989) 181:67-73
#title Isolation of heparin-binding growth factors from bovine,
porcine and canine hearts.
#cross-references.MUID:89231704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #authors Crabb, J.W.; Armes, L.G.; Carr, S.A.; Johnson, C.M.; Roberts,
G.D.; Bordoll, R.S.; McKeehan, W.L.
#journal Blochemistry (1986) 25:4988-4993
#title Complete primary structure of prostatropin, a prostate
epithenial cell growth factor.
#cross-references MUID:87026586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #authors Burgess, W.H.; Mehlman, T.; Marshak, D.R.; Fraser, B.A.;
Maciag, T.
#journal Proc. Natl. Acad. Sci. U.S.A. (1986) 83:7216-7220
#title Structural evidence that endothelial cell growth factor beta is the precursor of both endothelial cell growth factor alpha and acidic fibroblast growth factor.
#cross-references MUID:87016918
#journal FEBS Lett. (1988) 242:41-46
#title Characterization of a bovine acidic FGF cDNA clone and its expression in brain and retina.
#cross-references MUID:89078619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #authors Bohlen, P.; Esch, F.; Baird, A.; Gospodarowicz, D.
#journal EMBO J. (1985) 4:1951-1956
#title Acidic fibroblast growth factor (FGF) from bovine brain:
    anino-terminal sequence and comparison with basic FMF.
#cross-references MUID:86055750
                                                                                                                                                                                                                                                                                                                                                                                           ##cross-references EMBL:X66446; NID:9411; PIDN:CAA47063.1; PID:9412
A94290
                                                                                                                                                                                                                             ##cross-references EMBL:X14032; NID:g322; PIDN:CAA32192.1; PID:g323
NCE S22065
                                                                                                                                                                                                                                                                                             Philippe, J.M.
submitted to the EMBL Data Library, May 1992
$22065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##molecule_type protein
##residues 16-30,'X',32-34,'X',36-44 ##label BOH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2,'GE',5-155 ##label CRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #accession A94201
##molecule_type protein
16-155 ##label GIM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##molecule_type mRNA
##residues 62-102 ##label ABR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##molecule_type protein
##residues 16-45 ##label QUI
                                                                                                                                                                                                  1-155 ##label ALT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##molecule_type protein
                                                                                                                                                             ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A91010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A91010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A94127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   503953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A24477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A94281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A24477
```

```
A60130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S02639
                                                                                                                    A3447.7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ALTERNATE_NAMES
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CLASSIFICATION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #accession
                                                                                                                      #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #journal #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                        COMMENT
                                                                                                                                                                                                                                                                                                                                                                         COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #authors Kuo, M.D.; Huang, S.S.; Huang, J.S.
#journal J. Biol. Chem. (1990) 265:16455-16463
#title Acidic fibroblast growth factor receptor purified from bovine liver is a novel protein tyrosine kinase.
#cross-references MUID:90375514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Brain Res. Dev. Brain Res. (1991) 63:13-19
Class 1 heparin binding growth factor promotes the
differentiation but not the survival of ciliary neurones in
                                                                                                                                                       this form was designated acidic fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Philippe, J.M.; Renaud, F.; Desset, S.; Laurent, M.; Mallet, J.; Courtois, Y.; Edwards, J.B.
Blochem. Blophys. Res. Commun. (1992) 188:843-850
Cloning of two different 5' untranslated exons of bovine acidic fibroblast growth factor by the single strand ligation to single-stranded cDNA methodology.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ø
                                                                                                                                                                                                                                      growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           form
                                                           growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Disalvo, J.
J. Protein Chem. (1987) 6:163-171
Primary structure and mitogenic and angiogenic activities brain-derived acidic fibroblast growth factor.
A60884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##molecule_type_protein
##residues_22-30,'X',32-38 ##label KUZ
##residues this form was designated brain-derived growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##molecule_type protein
##residues 11-26;28-50;53-110,'H',112,'NTY';134-155 ##label HIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hill, C.E.; Belford, D.A.; Godovac-Zimmermann, J.; Hendry,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##cross-references EMBL:X66446; NID:g411; PIDN:CAA47063.1; PID:g412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           æ
                                                                                                                                                                                                                                      cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sasaki, H.; Hoshi, H.; Hong, Y.M.; Suzuki, T.; Kato,
                                                         cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           oţ
                                                                                                                                                                                                                                                                                       #authors Strydom, D.J.; Harper, J.W.; Lobb, R.R.
fjournal Biochemistry (1986) 25:945-951
#fitle Amino acid sequence of bovine brain derived class
heparin-binding growth factor.
| *cross-references MID:86187766
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##molecule_type protein
##residues 62-76,'X',78-86 ##label KUO
##note this sequence is an amino-terminal fragment
designated as brain-derived growth factor
                                                                                                                                                                                         ##molecule_type protein
##residues 22-155 ##label BU3
##note this form was designated alpha endothelial
                                    BUR
designated beta endothelial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##molecule_type protein
##residues
16-155 ##label THO
                                                                                                                                    BU2
                                                                                                                                                                                                                                                                                                                                                                                                                                .6-155 ##label STR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1-18 ##label PH2
                                                                                                                                  .6-155 ##label
              ##molecule_type protein
##residues 2-155 ##label
##note this form was
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tross-references MUID:92164087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MUID: 93075172
                                                                                                                                                                                                                                                        factor
                                                                           factor
                                                                                                                ##molecule_type protein
##residues 16-155
                                                                                                                                                                                                                                                                                                                                                                                                     ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##status trans
##molecule_type mRNA
##residues 1-18
B25043
                                                                                             C25043
                                                                                                                                                                       A25043
                                                                                                                                                                                                                                                                                                                                                                                         A24539
                                                                                                                                                                                                                                                                                                                                                                                                                                                  A60884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A37892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A37892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A61198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           I46024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        *cross-references
                                                                                                                                                                                                                                                                                                                                                                                                                                  ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #accession
  *accession
                                                                                               #accession
                                                                                                                                                                           #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  *accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #accession
                                                                                                                                                                                                                                                                                                                                                                                             *accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           # journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #title
                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3
```

```
##residues 16-24/121-127;134-143 ##label SAS
##experimental_source heart
The acidic and basic fibroblast growth factors are the major endothelial-cell growth factors. Both are angiogenic agents in vivo and are potent mitogens for a variety of mesoderm-derived cell types in vitro (although bFGF is 30-100 times more potent than aFGF in stimulating the proliferation of normal diploid cells). There are differences in the tissue distribution and concentration of these two growth factors.

This protein binds heparin, although less strongly than does bFGF.
This protein binds heparin, although less strongly than does bFGF.
There are some sequence similarities between residues 117-126 (a region flanked by Lys-Lys dipeptides) and a number of neuropeptides, including a gastrin-releasing peptide from the pig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #authors Risau, W.; Gautschi-Sova, P.; Boehlen, P.
#journal EMBO J. (1988) 7:959-962
#title Endothelial cell growth factors in embryonic and adult chick brain are related to human acidic fibroblas' growth factor.
#cross-references MUID:88296438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##Tersidues 1.155 ##label SCH
##cross-references GB:S63263; NID:9234372; PIDN:AAB19629.1; PID:9234373
                                                                          bovine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         81 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKHWFVGLKKNGRSKLGPRTHF 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         21 GNYKKPKLLYCSNGGYFLRILPDGTVDGTKDRSDQHIQLQLCAESIGEVYIKSTETGQFL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            acidic fibroblast growth factor - chicken
endothelial cell growth factor
#formal_name Gallus gallus #common_name chicken
03-Mar-1993 #sequence_revision 03-Mar-1993 #text_change
#journal J. Biol. Chem. (1989) 264:17606-17612
#title Purification of acidic fibroblast growth factor from heart and its localization in the cardiac myocytes #cross-references MUID:90008933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Development (1991) 111:1143-1154
Differentiating and mature neurons express the acid
fibroblast growth factor gene during chick neural
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ###molecule_type protein
##rosidues_22-30, X', 32-44, X', 46-48 ##label RIS
FICATION #superfamily fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 917; DB 1; Le
Pred. No. 6.69e-177;
6; Mismatches 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #type complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Schnuerch, H.; Risau, W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Note: remainder of annotations omitted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #cross-references MUID:91347925
                                                                                                                                                                                                   preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 60.2%;
Best Local Similarity 91.9%;
Matches 124; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         16-Jul-1999
A60130; S02639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     development
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GOKAILFLPLPVSSD 210
                                                                                                                                                                                                                                     ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    141 GQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##molecule_type mRNA
##residues 1-15
```

ဖ

SUMMARY

g ð g à 유 ô

```
##cross-references EMBL:X51552
##note it is uncertain whether Met-1 or Met-11 is the initiator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               $20102  #type complete
fibroblast growth factor 6 precursor - human
fibroblast growth factor-related protein FGF.6; transforming
    protein hst-2
                                                                                                                                                                                                                                                                                                                                                                                           ##cross-references GB:M92416; NID:q193288; PIDN:AAA62261.1; PID:g666915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##residues 1-18 ##label RE2
##cross-references GB:M92415; NID:g193286; PIDN:AAA62260.1; PID:g193287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##residues 1-208 ##label COU ##cross-references EMBL:X57075 ##note it is uncertain whether Met-1, Met-11 or Met-34 is the
Structure, chromosome mapping and expression of the murine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     124 ERGVVSLFGVKSALFIAMNSKGRLYTTPSFHDECKFRETLLPNNYNAYESDLYRGT--YI 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             71 GVNWESGYLVGIKRO----R-RL-YCNVGIGFHLQVPPDGRISGTHE-ENPYSLLEISTV 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11 MSRGAGRVQGTLQALVFLGVLVGMVVPSPAGARANGTLLDSRGWGTLLSRSRAGLAGEIS 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Oncogene (1991) 6:1437-1444
Putative structure of the FGF6 gene product and role of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                31; Mismatches 50; Indels 10; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #formal_name Homo sapiens #common_name man
18-Feb-1994 #sequence_revision 12-Apr-1996 #text_change
29-Aug-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    116/1; 150/3
#superfamily fibroblast growth factor
#length 208 #molecular-weight 22798; #checksum 6314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       $20102; $23739; $04204; $36910
$20102
Coulier, F.; Batoz, M.; Marics, I.; de Lapeyriere,
                                                                                                                                                                                               Ollendorff, V.; Rosnet, O.; Marics, I.; Birnbaum,
                                                                                                                                                                                                                                      #journal Blochimie (1992) 74:1035-1038 #title Isolation and sequence of the murine Fgf6 cDNA. #cross-references MUID:93120244
                                                                                                                                                                                                                                                                                                                                                                                                                                        preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                            preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     46.1%; Score 702; DB 2; Length 208; larity 55.6%; Pred. No. 1.66e-127; Conservative 31; Mismatches 50; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           translation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           not compared with conceptual
                                                                                                                                                                                                                                                                                                                                                                      19-208 ##label RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          182 ALSKYGRVKRGSKVSPIMTVTHFLP 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1-208 ##label
                                                                                                                                                                                                                      deLapeyriere, O.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       signal peptide.
                      Fgf-6 gene.
#cross-references MUID:90295275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Birnbaum, D.
                                                                                                                                                                                                                                                                                                                              ##status prel:
##molecule_type mRNA
                                                                                 ##molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local Similarity
                                                                                                                                                                                                                                                                                                            149665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S20102
                                                                                                                                                                           149664
                                                                                                                                                                                                                                                                                                                                                                                                                    I49664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  114;
                                                                                                                                                                                                                                                                                                                                                                         ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #introns
CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                          ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##status
                                                                                                                                                                                                                                                                                                                                                                                                                    #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10
                                                                                                                                                                                                  #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #dene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENETICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #journal Biochem. Biophys. Res. Commun. (1998) 246:182-191
#title Primary structure of ovine fibroblast growth factor-1 deduced
by protein and CDNA analysis.
#cross-references_MUID:98262939
                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sidues
This protein is a potent mitogenic factor for NIH 3T3 fibroblasts
This protein is a potent mitogenic factor for NIH 3T3 fibroblasts
in the absence of heparin.

IION *superfamily fibroblast growth factor
#length 155 *molecular-weight 17557 *checksum 8890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         de Lapeyriere, O.; Rosnet, O.; Benharroch, D.; Raybaud, F.; Marchetto, S.; Planche, J.; Galland, F.; Mattei, M.G.; Copeland, N.G.; Jenkins, N.A.; Coulier, F.; Birnbaum, D. Oncogene (1990) 5:823-831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Grieb, T.W.; Ring, M.; Brown, E.; Palmer, C.; Belle, N.; Donjerkovic, D.; Chang, H.; Yun, J.; Subramanian, R.; Forozan, F.; Guo, Y.; Vertes, A.; Winkles, J.A.; Burgess,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  81 AMDINGLLYGSQLPGEECLFLERLEENHYNTYISKKHADKNWFVGLKKNGNSKLGPRTHY 140
                                                                                                                                                                                                                                             21 GNYKKPKLLYCSNGGYFLRILPDGRVDGTKDRSDQHIQLQLYAESIGEVYIKSTETGQFL 80
                                                                                                                              21 GNYKKPKLLYCSNGGHFLRILPDGKVDGTRDRSDQHIQLQLSAEDVGEVYIKSTASGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #formal_name Ovis sp. #common_name sheep
17-Jun-1998 #sequence_revision 10-Jul-1998 #text_change
07-May-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          $14192  #type complete
fibroblast growth factor - mouse
#formal_name Mus musculus #common_name house
21.Nov-1993  #sequence_revision 10-Nov-1995  #text_change
16-Jul-1999
                                                                                        Gaps
  #molecular-weight 17322 #checksum 7617
                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           59.5%; Score 906; DB 2; Length 155; larity 90.4%; Pred. No. 2.34e-174; Conservative 8; Mismatches 5; Indels
                                             Length 155;
                                                                                 Indels
                                        Score 916; DB 2; L. Pred. No. 1.14e-176;
                                                                                                                                                                                                                                                                                                                                                                                                                                 JW0055 #type complete
fiblobrast growth factor-1 - sheep
FGF-1
                                                                                     6; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S14192; I49665; I49664
                                        60.2%;
ilarity 90.4%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                196 GQKAILFLPLPVSSD 210
                                                                                                                                                                                                                                                                                                     141 GOKAILFLPLPVSAD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       141 GQKAILFLPLPVSSD 155
#length 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
Matches 122; Conser
                                                            Local Similarity
Les 122; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CLASSIFICATION
SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #accession
                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
#authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSIONS
                                                                                   Matches
```

COMMENT

ORGANISM

DATE

ESULT

; 9

the

ORGANISM

RESULT TITLE DATE

g 101

g

ò

ò

·· 0

```
##residues 1-189 ##label BOR
##experimental_source embryo
##molecule_type nucleic acid
                                                                                                                                                                                                                               ##status
##molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S00185
                                                                                                                                                                                                             S23636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CLASSIFICATION
                                                                                                                                                                                                               #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              107-110
SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSIONS
REFERENCE
                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             임
                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                       ##cross-references EMBL:X63454
##note it is uncertain whether Met-1 or Met-11 is the initiator
                                 Iida, S.; Yoshida, T.; Naito, K.; Sakamoto, H.; Katoh, O.;
    HizobashL, S.; Sato, T.; Onda, M.; Sugimura, T.; Terada, M.
Oncogene (1992) 7:303-309
Human hst-2 (FGF-6) oncogene: cDNA cloning and
                                                                                                                                                                                                                                                               #authors Marics, I.; Adelaide, J.; Raybaud, F.; Mattei, M.G.; Couller,
F.; Planche, J.; de Lapeyriere, O.; Birnbaum, D.
fjournal Oncogene (1989) 4:335-340
#title Characterization of the HST-related FGF.6 gene, a new member of the fibroblast growth factor gene family.
#cross-references MUID:89201880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Borja, A.Z.; Meijers, C.; Zeller, R.
Borv. Biol. (1993) 157:110-118
Expression of alternatively spliced bFGF first coding exons and antisense mRNAs during chicken embryogenesis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #product fibroblast growth factor 6 #status predicted
#label MAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            71 GVNWESGYLVGIKRQ----R-RL-YCNVGIGFHLQVLPDGRISGTHE-ENPYSLLEISTV 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  124 ERGVVSLFGVRSALFVAMNSKGRLYATPSFQEECKFRETLLPNNYNAYESDLY-QGT-YI 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              11 MSRGAGRLQGTLWALVFLGILVGMVVPSPAGTRANNTLLDSRGWGTLLSRSRAGLAGEIA 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #domain (or 11-40 or 34-40) signal sequence #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A48834 *type complete basic fibroblast growth factor - chicken fformal_name Gallus gallus *common_name chicken 01-pec-1993 *sequence_revision 18-Nov-1994 *text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #molecular-weight 22904 #checksum 6745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 681; DB 2; Length 208;
Pred. No. 1.00e-122;
35; Mismatches 50; Indels 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##cross-references GDB:119908; OMIM:134921
#map_position 12p13-12p13
#introns #intron #superfamily fibroblast growth factor SSIFICATION #superfamily fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                     ##residues 81-99,'G',101-208 ##label MAR ##cross-references EMBL:X14071
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     predicted #label SIG\
                                                                                                                                                                                         1-208 ##label IID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              182 ALSKYGRVKRGSKVSPIMTVTHFLP 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        180 GLKKNGSCKRGPRTHYGQKAILFLP 204
                                                                                                             characterization.
                                                                                                                           #cross-references MUID:92195660
#accession $23739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tross-references MUID:93246053
initiator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Match 44.7%;
Local Similarity 53.7%;
Les 110; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GDB:FGF6; hst-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      16-Jul-1999
A48834; S23636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #length 208
                                                                                                                                                                 ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                 ##molecule_type DNA
                                                                                                                                                                                                                                               504204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A48834
                                                                                                                                                                                                                                                                                                                                                                                   504204
                                                                                                                                                                                         ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CLASSIFICATION
FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #accession
##status
                                                                                                                                                                                                                                                                                                                                                                                   #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #authors
#journal
                                                                       #journal
#title
                                 #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       41-208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #title
                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENETICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
```

```
##residues ##schidues ##schidus ##schidues ##schidues ##schidues ##schidus #
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Simpson, R.J.; Moritz, R.L.; Lloyd, C.J.; Fabri, L.J.; Nice, E.C.; Rublra, M.R.; Burgess, A.W. EEBS Lett. (1987) 224:128-132 Primary structure of ovine pituitary basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ï
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ij
                                                                                                                                                     #authors Mitteni, E.; Gruenbaum, Y.; Shohat, H.; Ziv, T.
#journal Development (1990) 109:387-393
#title Fibroblast growth factor during mesoderm induction in the early chick embryo.
#cross-references MUID:90382254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              58 GHFKDPKRLYCKNGGFFLRINPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVSANRFL 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         118 AMKEDGRLLALKCATEECFFFERLESNNYNTYRSRKYSD--WYVALKRTGQYKPGPKTGP 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           75 AMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGPKTGP 132
sequence extracted from NCBI backbone (NCBIN:131000, NCBIP:131001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15 GHFKDPKRLYCKNGGFFLRIHPDGRYDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #common_name domestic sheep
10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change
10-Sep-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #region heparin binding #status predicted\
#region heparin binding #status predicted
#length 146 #molecular-weight 16434 #checksum 3560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 522; DB 2; Length 189;
Pred. No. 6.67e-87;
23; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 33.9%; Score 516; DB 1; Length 146; Best Local Similarity 55.2%; Pred. No. 1.45e-85; Matches 74; Conservative 22; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1-146 ##label SIM #superfamily fibroblast growth factor growth factor; heparin binding; mitogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S00185 #type complete
basic fibroblast growth factor - sheep
prostatropin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #cross-references MUID:88055577
#accession S00185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity 54.5%;
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      176 GOKAILFLPMSAKS 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              111111111:: 1
196 GQKAILFLPLPVSS 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 actor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
```

ø

```
binding; mitogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A61094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A61094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CLASSIFICATION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #accession
                                                                                                                                                                                                                                                                                                                                                                          #authors
#journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #authors
                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                       #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       J.; Hjerrild, K.A.; Gospodarowicz, D.; Fiddes, J.C.
Science (1986) 233:945-548
Nucleotide sequence of a bovine clone encoding the angiogenic
protein, basic fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    **residues 3-157 ##label ABR ##cross-references GB.M13440; NID:g163049; PIDN:AAA30518.1; PID:g163050 ##experimental_source pituitary gland A90924 A90924
                                                                                                                                                                                                                                               GKBOB #type fragment
basic fibroblast growth factor precursor - bovine (fragment)
#fight kidney-derived growth factor; prostatropin
#formal_name Bos primigenius taurus #common_name cattle
13.Aug-1986 #sequence_revision 02-Jun-1995 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Abraham, J.A.; Mergia, A.; Whang, J.L.; Tumolo, A.; Friedman,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Milner, P.G.; Li, Y.S.; Hoffman, R.M.; Kodner, C.M.; Siegel, N.R.; Deuel, T.F.
abcohem. Biophys. Res. Commun. (1989) 165:1096-1103
A novel 17 kD heparin-binding growth factor (HBGF-8) in bovine uterus: purification and N-terminal amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #authors Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R.
#journal Mol. Cell. Endocrinol. (1987) 49:189-194
#title Isolation and partial characterization of basic fibroblast
growth factor from bovine testis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #authors Bertolini, J.; Hearn, M.T.W.
#journal Mol. Cell. Endocrinol. (1987) 51:187-199
#title Isolation, characterisation and tissue localisation of an N-terminal-truncated variant of fibroblast growth factor.
#cross-references MUID:87247652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Fiddes,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #journal Cold Spring Harb. Symp. Quant. Biol. (1986) 51:657-668
#title Human basic fibroblast growth factor: nucleotide sequence, genomic organization, and expression in mammalian cells. #cross-references MUID:87217066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Oceanor of the following the following spirite included in the following spirite increases of the following spirite incre
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           this form appears to be identical to the renal form
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A24663; A32878; A33784; A61550; A61551; A60310; A61094;
A01386; A60316; A22054; A24819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ueno, N.; Baird, A.; Esch, F.; Shimasaki, S.; Ling,
Guillemin, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##residues 27-35,'X',37-41 ##label UE3
##experimental_source testes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #accession Ablace
##molecule_type protein
16-35 ##label BER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##molecule_type mRNA
##residues 3-157 ##label AB2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #cross-references MUID:90121211
#accession A33784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #cross-references MUID:86261806
                                                                                                                                                                                                                                                                                                                                                                                                                                                       10-Sep-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##molecule_type protein
    133 GQKAILFLPMSAKS 146
                                                                            196 GOKAILFLPLPVSS 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A60310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A32878
                                                                                                                                                                                                                                                                                                                                    ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##note
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #authors
#journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #authors
                                                                                                                                                                                                            13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                            RESULT
    g
                                                                                     ò
```

```
#journal Proc. Natl. Acad. Sci. U.S.A. (1985) 82:6507-6511
#title Primary structure of bovine pituitary basic fibroblast growth factor (FGF) and comparison with the amino-terminal sequence of bovine brain acidic FMF.
#cross-references WUID:86016731
#accession A01386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #authors
Baird, A.; Esch, F.; Boehlen, P.; Ling, N.; Gospodarowicz, D.
#journal Regul. Pept. (1985) 12:201-213
#title Isolation and partial characterization of an endothelial cell
growth factor from the bovine kidney: homology with basic
fibroblast growth factor.
#cross-references MUD:86095426
#accession A60316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #authors Bohlen, P.; Baird, A.; Esch, F.; Ling, N.; Gospodarowicz, D.
#journal Proc. Natl. Acad. Sci. U.S.A. (1984) 81:5364-5368
#title Isolation and partial molecular characterization of pituitary fitches references MUID:84298139
#accession A22054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Esch, F.; Baird, A.; Ling, N.; Ueno, N.; Hill, F.; Denoroy, L.; Klepper, R.; Gospodarowicz, D.; Bohlen, P.; Guillemin, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         factor from bovine liver: structural homology with basic fibroblast growth factor. #cross-references MUID:87119165 #accession A60310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #authors Gospodarowicz, D.; Baird, A.; Cheng, J.; Lui, G.M.; Esch, Bohlen, P.
#journal Endocrinology (1986) 118:82-90
#title Isolation of fibroblast growth factor from bovine adrenal gland: physicochemical and biological characterization.
#cross:references MUID:86081530
Regul. Pept. (1986) 16:135-145
Purification and partial characterization of a mitogenic
                                                                                                                                                                                                                                                                                                                                                                                                                                                  the amino end of this form was blocked; the peptide composition matched what was thought to be the signal
                                                                                                                                                                                                                                                                               Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R. Biochem. Biophys. Res. Commun. (1986) 138:580-588 Isolation of an amino terminal extended form of basic fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##experimental_source adrenal gland ##label GOS ##experimental_source adrenal gland #01386 # #058
                                                                                                                                                                   ##molecule_type protein
##residues 23-35,'X',37-42 ##label UEN
##experimental_source liver
A24819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##molecule_type protein
##residues 27-35,'X',37-43 ##label BAI
##experimental_source kidney
MNCE A22054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##experimental_source pituitary gland
NCE A60316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type protein
##residues 12-157 ##label ESC
                                                                                                                                                                                                                                                                                                                                                                                           #cross-references MUID:86295737
#contents annotation
#note the amino end of t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sednence
```

σ

196 GOKAILFLPLPVSS 209

```
合
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
         #product basic fibroblast growth factor, uterine form
#status predicted #label MATI\
#product basic fibroblast growth factor, pituitary gamma
form #status experimental #label MAT2\
#product basic fibroblast growth factor, pituitary alpha
form #status experimental #label MAT3\
#product basic fibroblast growth factor, pituitary short
form #status predicted #label MAT4\
#product basic fibroblast growth factor, hepatic form
#status experimental #label MAT5\
#product basic fibroblast growth factor, renal form
#status experimental #label MAT6\
#product basic fibroblast growth factor, renal form
#status experimental #label MAT6\
#product basic fibroblast growth factor, renal form
#status experimental #label MAT6\
#product basic fibroblast growth factor, renal form
#status product basic fibroblast growth factor, growth factor,
#product basic fibroblast growth factor, renal form
#status experimental #label MAT6\
#podiied_site blocked anino end (Ala) (in mature form
pituitary gamma) (probably acetylated) #status
#length 157 #checksum 1115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Dev. Biol. (1990) 138:454-463
Isolation of cDNAs encoding four mouse FGF family members and
characterization of their expression patterns during
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##residues 1-154 ##label HEB ##cross-references GB:M30644; NID:g193296; PIDN:AAA37621.1; PID:g309239 CLASSIFICATION #superfamily fibroblast growth factor #length 154 #molecular-weight 17153 #checksum 2906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hebert, J.M.; Basilico, C.; Goldfarb, M.; Haub, O.; Martin, G.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              86 AMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGOYKLGPKTGP 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         83 AMKEDGRLLASKCVTEECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGSKTGP 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     26 GHFKDPRRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              23 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYL 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C37360 #type complete
basic fibroblast growth factor - mouse
#formal_name Mus musculus #common_name house mouse
17.Apr-1993 #sequence_revision 17-Apr-1993 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 508; DB 2; Length 154;
Pred. No. 8.70e-84;
23; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 1; Length 157;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 516; DB 1; Length 157
Pred. No. 1.45e-85;
22; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        embryogenesis.
#cross-references MUID:90201563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 33.9%;
Best Local Similarity 55.2%;
Matches 74; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 33.4%;
Best Local Similarity 54.5%;
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       196 GQKAILFLPLPVSS 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         144 GOKAILFLPMSAKS 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GOKAILFLPMSAKS 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C37360
                                                                                                                                                                                                                                                                                                 29-33,118-121
4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #title
                                                                                                                 12-157
                                                                                                                                                                                                                                                              27-157
                                                                                                                                                                16-157
                                                                                                                                                                                                               23-157
                   1-157
                                                                  4-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                      -SUMMARY
FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
```

1.

:: = = =

```
Shimasaki, S.; Emoto, N.; Koba, A.; Mercado, M.; Shibata, F.; Cooksey, K.; Baird, A.; Ling, N.
Blochem. Biophys. Res. Commun. (1988) 157:256-263
Complementary DNA cloning and sequencing of rat ovarian basic fibroblast growth factor and tissue distribution study of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #authors El-Husseini, A.E.D.; Paterson, J.A.; Myal, Y.; Shiu, R.P.C.
#journal Blochim. Blophys. Acta (1992) 1131:314-316
#title PCR detection of the rat brain basic fibroblast growth factor (bFGF) mRNA containing a unique 3' untranslated region.
#accession $224309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##cross-references EMBL:X61697; NID:g56143; PIDN:CAA43863.1; PID:g56144
FICATION #superfamily fibroblast growth factor
5
                                                                                                                                                                                                                                                                                                                                                                                                                 ##residues 1-154 ##label SHI
##cross-references GB:M22427; NID:g204285; PIDN:AAA41210.1; PID:g204286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##residues _ 1-154 ##label KUR
##cross-references EMBL:X07285; NID:956203; PIDN:CAA30265.1; PID:956204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                83 AMKEDGRLLASKCVTEECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGSKTGP 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Kurokawa, T.; Seno, M.; Igarashi, K.
Nucleic Acids Res. (1988) 16:5201
Nucleotide sequence of rat basic fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        23 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYJ, 82
                                                                                       #formal_name Rattus norvegicus #common_name Norway rat
21-May-1990 #sequence_revision 21-May-1990 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #domain signal sequence #status predicted #label
#product basic fibroblast growth factor #status
predicted #label MAT
#length 154 #molecular-weight 17139 #checksum 3026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 508; DB 2; Length 154
Pred. No. 8.70e-84;
23; Mismatches 36; Indels
                     A31674 #type complete
basic fibroblast growth factor precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Search completed: Tue Aug 29 16:13:14 2000 Job time : 70 secs.
                                                                                                                                                          A31674; S00876; S24309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            *cross-references MUID:88262516
                                                                                                                                                                                                                                                                                                                         its mRNA.
#cross-references MUID:89061721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                33.4%;
Local Similarity 54.5%;
Nes 73; Conservative
                                                                                                                                     1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    196 GOKAILFLPLPSS 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             141 GOKAILFLPMSAKS 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type mRNA
                                                                                                                                       16-Jul-
                                                                                                                                                                                                                                                                                                                                                                                       ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 800876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           $24309
                                                                                                                                                                                                                                                                                                                                                                    A31674
                                                                                                                                                                                                                                                                                                                                                                                                                    ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##residues
                                             TITLE
ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #accession
                                                                                                                                                                                                                                                                                                                                                                      #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #journal
                                                                                                                                                                                                          #authors
                                                                                                                                                                                                                                                       #journal
                                                                                                                                                            ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                            #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10-154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
FEATURE
                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SUMMARY
RESULT
                                                                                                               DATE
```

and the second of the second o

*****	(TM)	*****
*****		******
***	·	***
化化妆料的复数形式 计电子记录 医克拉克氏性 医克拉克氏性 医克拉克氏性 医克拉克氏性 医克拉氏性 医克拉氏征 计记录器 计记录器 计记录器 计记录器 计记录器 计记录器 计记录器 计记录器	$\begin{bmatrix} \bar{1} & 1 \end{bmatrix}$	***************************************
******		******
****		****
*****		*****
*****		******
*****		*****
****		***
*****		*****
***		****

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

protein - protein database search, using Smith-Waterman algorithm MasPar time 8.09 Seconds 804.050 Million cell updates/sec MPsrch\_pp

Tue Aug 29 16:10:16 2000; Run on:

bular output not generated.

Title: Description: Perfect Score: Sequence:

PAM 150 Gap 11 Scoring table:

85661 seqs, 30989116 residues Searched:

Minimum Match 0% Listing first 45 summaries Post-processing:

1:swissprot swiss-prot38 Database:

Mean 45.430; Variance 71.241; scale 0.638 Statistics: Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

### SUMMARIES

Pred No		1.76e-219	5.53e-215	1.02e-214	2.78e-211	8.84e-202	1.62e-201	1.78e-145	5.00e-140	3.26e-99	1.08e-97	1.08e-97	1.15e-95	1.15e-95	6.42e-96	3.89e-93	7.27e-91	4.45e-85	9.49e-63	4.36e-59	2.05e-56	2.05e-56	2.05e-56	3.09e-54
Description	4 1	HEPARIN-BINDING GROWTH	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	HEPARIN-BINDING GROWTH	FIBROBLAST GROWTH FACT	GLIA-ACTIVATING FACTOR	GLIA-ACTIVATING FACTOR	GLIA-ACTIVATING FACTOR	SLIA-ACTIVATING FACTOR	FIBROBLAST GROWTH FACT													
10		FGF1_HUMAN	FGF1_MESAU	FGF1_MOUSE	FGF1_PIG	FGF1_BOVIN	FGF1_CHICK	FGF6_MOUSE	FGF6_HUMAN	FGF2_CHICK	FGF2_SHEEP	FGF2_BOVIN	FGF2_MOUSE	FGF2_RAT	FGF2_HUMAN	FGF2_MONDO	FGF2_XENLA	FGF2_RABIT	FGFB_XENLA	FGF9_XENLA	FGF9_MOUSE	FGF9_RAT	FGF9_HUMAN	FGFA_XENLA
DB	1 :	-	-	-4	-	Н	<del>, -1</del>	ч	-	-	-	Н	Н	ч	٦	П	٦	ч	-	-	Н	-	н	-
% Query Match Length		155	155	155	152	155	155	. 208	208	158	155	155	154	154	155	156	155	137	192	209	208	208	208	187
% Query Match		64.7	63.5	63.5	62.6	60.2	60.2	46.1	44.7	34.3	33.9	33.9	33.4	33.4	33.4	32.7	32.1	30.6	24.7	23.7	23.0	23.0	23.0	22.4
Score		984	196	996	953	917	916	702	681	522	516	516	508	208	509	498	489	466	376	361	350	350	350	341
Result	,	<b>-</b>	7	m	4	Ŋ	φ	7	æ	σ	2	11	12	13	14	12	16	11	18	19	20	21	22	23
9		1																						

MEDLINE; 900/303/. Mergia A., Tischer E., Graves D., Tumolo A., Miller J., Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.; "Structural analysis of the gene for human acidic fibroblast growth

SEQUENCE FROM N.A. MEDLINE; 90073637.

Biochem. Biophys. Res. Commun. 164:1121-1129(1989)

[5] SEQUENCE FROM N.A.

factor.

2.40e-51 3.80e-50	8.38e-47	4.33e-46	6.66e-45	3.42e-44	3.01e-43	1.73e-39	5.06e-39	5.06e-39	5.06e-39	2.53e-38	7.39e-38	4.33e-38	4.33e-38	1.26e-37	3.68e-37	1.83e-36	9.02e-36	2.18e-34	3.70e-34	3.70e-34
FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	KERATINOCYTE GROWTH FA	KERATINOCYTE GROWTH FA	KERATINOCYTE GROWTH FA	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	KERATINOCYTE GROWTH FA	FIBROBLAST GROWTH FACT									
FGFG_HUMAN	FGF4_CHICK	FGF4_BOVIN	FGF7_SHEEP	FGF7_HUMAN	FGF7_MOUSE	FGF5_MOUSE	FGFA_HUMAN	FGFA_RAT	FGF5_RAT	FGFE_MOUSE	FGF4_HUMAN	FGFA_MOUSE	FGFE_HUMAN	FGF7_RAT	FGF5_HUMAN	FGF3_BRARE	FGFB_HUMAN	FGFB_MOUSE	FGF4_MOUSE	FGFC_HUMAN
	-1	-	Н	Н	П	٦	٦	ч	Н	ч	٦	٦	7	Н	Н	Н	Н	Н	Н	Н
207	194	206	194	194	194	264	208	212	266	247	206	209	247	194	268	256	225	225	202	243
21.6	20.4	20.5	19.8	19.6	19.4	18.3	18.2	18.2	18.2	18.0	17.9	17.9	17.9	17.8	17.7	17.5	17.3	16.9	16.8	16.3
329 324	310	307	302	299	295	279	277	277	277	274	272	273	273	271	269	266	263	257	256	256
24 25	56	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

### ALIGNMENTS

```
FGF1_HUMAN STANDARD; PRT; 155 AA.
P05230; P07502;
13-A06-1987 (Rel. 05, Created)
13-A06-1987 (Rel. 05, Last sequence update)
15-JUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR)
                                                                                                                                                                                                 [1] SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
JAYEDLINE; 86261805.
JAYE M., Howk R., Burgess W., Ricca G.A., Chiu I.-M., Ravera M.W., O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;
"Human endothelial call growth factor: cloning, nucleotide sequence, and chromosome localization.";
Science 233:541-545(1986).
                                                                                                                                                                                                                                                                                                                                                                                      Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding growth factor and its expression in fetal tissues."; Mol. Cell. Biol. 9:2387-2395(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
TISSUE-BRAIN STEM;
MEDLINE; 9026518.
Chiu I.M., Wang W.P., Lehtoma K.;
"Alternative splicing generates two forms of mRNA coding for human heparin-binding growth factor 1.";
Oncogene 5:755.762(1990).
                                                                                                                                  FGFI OR FGFA.
Homo saplens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                           [2]
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                        TISSUE-BRAIN STEM;
MEDLINE; 89343957.
RESULT
```

human acidic fibroblast

```
PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL;
EMBL;
EMBL;
EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PFAM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PIR;
 MEDLINE; 94069734.
Zhao X.M., Yeoh T.K., Hiebert M., Frist W.H., Miller G.G.;
The expression of acidic fibroblast growth factor (heparin-binding growth factor-1) and cytokine genes in human cardiac allografts and T cells.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "Partial molecular characterization of endothelial cell mitogens from numan brain: acidic and basic fibroblast growth factors."; FEBS Lett. 204:203-207(1986).
       Wang W.P., Quick D., Balcerzak S.P., Needleman S.W., Chiu I.M.; "Cloning and sequence analysis of the human acidic fibroblast growth factor gene and its preservation in leukemia patients."; Oncogene 6:1521-1529(1991).
                                                                                                                                                                                                                                                                                                                                                     Harper J.W., Strydom D.J., Lobb R.R.; "Human class 1 heparin-binding growth factor: structure and homology to bovine acidic brain fibroblast growth factor."; Biochemistry 25:4097-4103(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Blaber M., Disalvo J., Thomas K.A.;
"X-ray crystal structure of human acidic fibroblast growth factor.";
Blochemistry 35:2086-2094(1996).
                                                                                                   Turck E.J.;
An acidlof ibroblast growth factor protein generated by alternate
"Phloding acts like an antagonist.";
J. Exp. Med. 175:1073-1080(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.; "Human brain-derived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitogenic activities."; Biochem. Biophys. Res. Commun. 135:541-548(1986).
                                                                                                                                                                                                                                                 SEQUENCE OF 1-40 FROM N.A.
MEDLINE; 90365758.
Crumley G., Dionne C.A., Jaye M.;
The gene for human acidic fibroblast growth factor encodes two upstream exons alternatively spliced to the first coding exon.";
Biochem. Biophys. Res. Commun. 171:7-13(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  growth factor.";
                                                                                                                                                                                                                                                                                                                                                                                                                                    Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.; "The complete amino acid sequence of human brain-derived acidic fibroblast growth factor "18 fibroblast growth factor" Biochem. Biophys. Res. Commun. 138:611-617(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ž
                                                                                        Li Y.L., Kha H., Golden J.A., Migchielsen A.A.J., Goetzl E.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE; 94358885.
Pineda-Lucena A., Jimenez M.A., Nieto J.L., Santoro J., Rico
Gimenez-Gallego G.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE; 87048871.
Gautschi-Sova P., Mueller T., Boehlen P.;
"Amino acid sequence of human acidic fibroblast g
Blochem. Biophys. Res. Commun. 140:874-880(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      P., Frater-Schroeder M., Boehlen P.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             X-RAY CRYSTALLOGRAPHY (2.0 ANGSTROMS). MEDLINE; 96194129.
                                                                                                                                                                                                                             Fransplantation 56:1177-1182(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRUCTURE BY NMR OF 24-155.
                                                                                                                                                                                                                                                                                                                                  SEQUENCE OF 16-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE OF 16-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OF 16-49.
86275260.
                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE OF 16-155.
                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE; 86295741.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OF 16-47.
86186784.
                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                              MEDLINE; 86296647
                                                                             92202857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE OF MEDLINE; 862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE;
                                                                            MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gautschi
                                                        9
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the Buropean Bloinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                             Lozano R.M., Jimenez M., Santoro J., Rico M., Gimenez-Gallego G.;
"Solution structure of acidic fibroblast growth factor bound to 1,3,
"Solution structure of acidic fibroblast growth factor bound to 1,3,
"Solution structure a minimal model for the anti-tumoral
action of suramins and suradistas.";
J. Mol. Biol. 281:899-915(1998).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRINTS; PR00262; ILIHBGF.
PRINTS; PR00263; HBGFFGF.
PR0SITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding; Acetylation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -!- SUBUNIT: MONOMER.
-!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
THAN DOES BFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                              Pineda-Lucena A., Jimenez M.A., Lozano R.M., Nieto J.L., Santoro J., Rico M., Gimenez-Gallego G.; "Three-dimensional structure of acidic fibroblast growth factor in solution: effects of binding to a heparin functional analog.", J. Mol. Biol. 264:162-178(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HEPARIN-BINDING GROWTH FACTOR ACETYLATION.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FS86E8BFB09F1580 CRC64;
"IH-NWR assignment and solution structure of hum. growth factor activated by inositol hexasulfate. J. Mol. Biol. 242:81-98(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HEPARIN (POTENTIAL)
HEPARIN (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   M60515; AAA51672.1;
M60516; AAA51673.1;
M23087; AAA52638.1;
M23086; AAA52638.1; JOINED.
S67291; AAB29057.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     M30490; AAA52446.1; JOINED. M30491; AAA52446.1; JOINED.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; M13361; AAA79245.1; -. EMBL; X51943; CAA36206.1; -.
                                                                                                                                                                                                                                                                                                                                               STRUCTURE BY NMR OF 25-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     15
155
28
28
116
17460 N
                                                                                                                                         OF 24-155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               M30492; AAA52446.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2AXM; 22-APR-98
1RML; 11-NOV-98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2AFG; 15-0CT-95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1AXM; 22-APR-98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A26386.
A33665.
S18217.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1
16.
2
24.
113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A24662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A24820
                                                                                                                                                              97107535.
                                                                                                                                                                                                                                                                                                                                                                          MEDLINE; 98387896.
                                                                                                                                         STRUCTURE BY NMR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PF00167;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A26386;
A33665;
S18217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A24662;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       D-structure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A24820;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2AXM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MOD_RES
BINDING
BINDING
SEQUENCE
```

Length 155;

DB 1;

Score 984;

Query Match

```
PFAM;
                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                 -i- SUBUNIT: MONOMER.
-i- MISCELLANDOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
THAN DOES BFGF.
-i- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
PIR; A60721; A60721.
PIRSP; P05230; 2AXM.
PFAM: PF00167; FGF; 1.
PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFFGF.
PRINTS; PR00264; HBGF-FGF.
Growth factor; Mitogen; Vascularization; Heparin-binding.
PROPEP
                                                                                                                                                                               01-FEB-1994 (Rel. 28, Created)
01-FEB-1994 (Rel. 28, Last sequence update)
15-UDL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST
                                            81 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                              Hall J.A., Harris M.A., Malark M., Mansson P.E., Zhou H., Harris S.E., "Characterization of the hamster DDT-1 cell aFGF/HGBF-1 gene and CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         81 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQYL 80
                                   21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 80
                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                  Mesocricetus auratus (Golden hamster).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BY SIMILARITY.
HEPARIN BINDING GROWTH FACTOR
HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 967; DB 1; Length 155; Pred. No. 5.53e-215;
                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           41E5EC760E412CC5 CRC64;
                  ö
        Pred. No. 1.76e-219;
                 1; Mismatches
                                                                                                                                                               155 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17403 MW;
64.78;
99.38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             63.58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    larity 97.0%;
Conservative
                  Conservative
                                                                                                        141 GQKAILFLPLPVSSD 155
                                                                                                                         196 GOKAILFLPLPVSSD 210
                                                                                                                                                             STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                196 GQKAILFLPLPVSSD 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                155
28
116
                                                                                                                                                                                                                   GROWTH FACTOR) (AFGF).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           155 AA;
        Best Local Similarity
Matches 134; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity
Les 131; Conser
                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A. MEDLINE; 90270291.
                                                                                                                                                                                                                                                               Mesocricetus
                                                                                                                                                     RESULT 2
ID FGF1_MESAU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     141
                                   硆
                                                                     셤
                                                                                       ò
                                                                                                        ದ್ದ
                                                                                                                                                                                                          RETTTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     음
                                                                                                                          õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@lsb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hebert J.M., Basilico C., Goldfarb M., Haub O., Martin J.R.; "Isolation of cDNAs encoding four mouse FGF family members and characterization of their expression patterns during embryogenesis."; Dev. Biol. 138:454-463(1990).
                                                                                   01-JUL-1989 (Rel. 11, Last sequence update)
15-JUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -i- SUBUNIT: MONOMER.
-i- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                     FGFI OR FGF-1 OR FGFA.
Was musculus (Mouse), and Rattus norvegicus (Rat).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE; 89240051.
Goodrich S., Yan G.C., Bahrenburg K., Mansson P.E.;
"The nucleotide sequence of rat heparin binding growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Alam K.Y., Frostholm A., Hackshaw K.V., Evans J.E., Fotter A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Madial F., Hackshaw K.V., Chiu I.M.; "Cloning and characterization of the mouse Fgf-1 gene."; Gene 179:231-236(1996).
   Š
   155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Nucleic Acids Res. 17:2867-2867(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL, X14232, CAA32448.1; -.
EMBL, M3641; AAA37618.1; -.
EMBL, U36459; AAC52969.1; -.
EMBL, U36457; AAC52969.1; JOINED.
EMBL, U36488; AAC52969.1; JOINED.
EMBL, U67610; AAC52907.1; -.
                                                       01-JUL-1989 (Rel. 11, Created)
01-JUL-1989 (Rel. 11, Last seq
15-JUL-1999 (Rel. 38, Last anno
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SPECIES-MOUSE; STRAIN-BALB/C; MEDLINE; 97094746.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRINTS; PR00262; IL1HBGF
STANDARD;
                                                                                                                                                                                (AFGF)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MGD; MGI:95515; FGF1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PIR; S04147; S04147.
PIR; D37360; D37360.
HSSP; P05230; 2AXM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               90201563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE; 97128312
                                                                                                                                                                                GROWTH FACTOR)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SPECIES=MOUSE
                                                                                                                                                                                                                                                                                                                                                                                            SPECIES-RAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE;
```

ö

```
BINDING
                                                                                                         PROPEP
                                                                                                                                CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
    DOR ETT FFT FFT SO STANDAR
                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HAD DE PART HAD DE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EUT. J. Biochem. 181:67-73(1989).

-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE IISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         123
SEQUENCE OF 22-41.
MEDILINE: 89231704.
Quinkler W., Maasberg M., Bernotat-Danielowski S., Luethe N.,
Sharma H.S., Schaper W.;
"Isolation of heparin-binding growth factors from bovine, porcine and canine hearts.";
                                                                                                                                                                                                                                                                                                                                                                                            136 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 195
                                                                                                                                                                                                                                                                                                      AMDTEGLLYGSQTPNEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SUBUNIT: MONOMER.
MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FIBROBLAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -! - SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                             21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQYL 80
                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (Francisco).
FGF1.
Sus scrofa (Pig).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE; 92062117.
Schmidt M., Sharma H.S., Schott R.J., Schaper W.;
Amplification and sequencing of mRNA encoding acidic fibroblast growth factor (aFGF) from porcine heart.";
Biochem. Biophys. Res. Commun. 180:853-859(1991),
                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-FEB-1996 (Rel. 33, Last sequence update)
Last annotation update;
HEPARIN BINDING GROWITH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC F
GROWITH FACTOR) (ALPHA-ENDOTHELIBL CELL GROWITH FACTOR)
                                                                                     HEPARIN-BINDING GROWTH FACTOR
                                                                                                                                                                                               Length 155;
                 PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
PROPEP 1 15
                                                                                                                                                                                                                                       Indels
                                                                                                     HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
8880E4FF0FBA4161 CRC64;
                                                                                                                                                                                          Score 966; DB 1; Le
Pred. No. 1.02e-214;
3; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           152 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                16 155 · HE
24 28 HE
113 116 HE
155 AA; 17418 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-FEB-1991 (Rel. 17, Created)
                                                                                                                                                                                          63.5%;
larity 96.3%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL; X60317; CAA42869.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               196 GQKAILFLPLPVSSD 210
HBGFFGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                      GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STANDARD;
                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               THAN DOES BFGF
PRINTS; PR00263;
                                                                                                                                                                                                                                   130;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TISSUE-HEART
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (FRAGMENT)
                                                                                                                           BINDING
                                                                                                                                                                                          Query Match
                                                                                                       BINDING
                                                                                                                                                                                                                   Local
                                                                                   CHAIN
                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                     81
                                                                                                                                                                                                                                                                                                                                                                                                                                                      141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
S FFFF S
                                                                                                                                                                                                                                                                                쉱
                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
```

```
fibroblast growth factor cDNA.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                    81 AMDTSGLLYGSQTPSEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                136 AMDIDGLIYGSQIPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (ACIDIC FIBROBLAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-WAR-1989 (Rel. 10, Last sequence update)
15-UUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST
GROWTH FACTOR) (AFGF) (PROSTATROPIN) (ENDOTHELIAL CELL GROWTH FACTOR
BETA AND ALPHA CHAINS) (ACIDIC EYE-DERIVED GROWTH FACTOR II) (EDGF
                                                                                                                                                                                                                                                                                                                                                                                                                          21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             is the
                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Alterio J., Halley C., Brou C., Soussi T., Courtois Y., Laurent M.; "Characterization of a bovine acidic FGF cDNA clone and its expression in brain and retina."; FEBS Lett. 242:41-46(1988).
                                                                                                                 HEPARIN-BINDING GROWTH FACTOR 1.
ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
C -> S (IN REF. 2).
R -> Y (IN REF. 2).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bos taurus (Bovine).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Burgess W.H., Mehlman T., Marshak D.R., Fraser B.A., Maciag T.; "Structural evidence that endothelial cell growth factor beta is t precursor of both endothelial cell growth factor alpha and acidic fibroblast growth factor "; Proc. Natl. Acad. Sci. U.S.A. 83:7216-7220(1986).
                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                              Length 152
                                                                     Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                                                                                            2; Indels
                                                                                                                                                                                                                                                                                   MW; AE853B0A92F9ABF4 CRC64;
                                                                                                                                                                                                                                                                                                                              Score 953; DB 1; L
Pred. No. 2.78e-211;
                                                                                                                                                                                                                                                                                                                                                                            2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        155 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Halley C., Courtois Y., Laurent M.;
"Nucleotide sequence of bovine acidic fil
Nucleic Acids Res. 16:10913-10913(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FGF1 OR FGF-1 OR FGFA OR HBGF-1 OR AFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            23-0CT-1986 (Rel. 02, Created)
01-MAR-1989 (Rel. 10, Last sequ
15-JUL-1999 (Rel. 38, Last anno
HSSP, PO5230; ZAXM.
PFAM; PF00167; FGF; 1.
PROSITE; PS00247; HBGF_FGF;
Growth factor; Mitogen; Vasc
                                                                                         115

>152

>152

28

28

116

31

39

152

17103 M
                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity 97.0%;
Matches 128; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bovidae; Bovinae; Bos.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 141 GOKAILFLPLPV 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            196 GQKAILFLPLPV 207
                                                                                                                   16 >3
22 >3
24 113
113 31
31 39
152 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TISSUE=RETINA;
MEDLINE; 89083506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TISSUE=RETINA;
MEDLINE; 89078619.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE OF 2-155
MEDLINE; 87016918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE OF 2-155.
MEDLINE; 87026586.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LT 5
FGF1_BOVIN
P03968;
                                                                                                                                                                                    BINDING
CONFLICT
CONFLICT
                                                                                                                                                                                                                                                          NON_TER
SEQUENCE
```

S

```
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding; Acetylation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   81 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKHWFVGLKKNGRSKLGPRTHF 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         136 AMDIDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 195
                                                                                                                                                                                                                                                                     ENDOTHELIAL CELL GROWTH FACTOR BETA. HEPARIN-BINDING GROWTH FACTOR 1. ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21 GNYKKPKLLYCSNGGYFLRILPDGTVDGTKDRSDQHIQLQLCAESIGEVYIKSTETGQFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      17493 MW; F636641F189F9BFD CRC64;
                                                                                                                                                                                                                                                                                                                                        HEPARIN (POTENTIAL)
HEPARIN (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 917; DB 1; L
Pred. No. 8.84e-202;
6; Mismatches 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        155 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (Rel. 17, Created)
(Rel. 33, Last sequence update)
                                                                                                                                                                                                                                                                                                                         ACETYLATION.
HEPARIN (POT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60.2%;
llarity 91.9%;
Conservative
                                                                                                                                                            PRINTS; PR00262; ILLHBGF
PRINTS; PR00263; HBGFFGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  141 GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
                                                                   PIR, B24663; B24663.
PIR, S02102; S02102.
PDB, IBAR, 31-OCT-93.
PDB, 1AFC; 31-OCT-93.
PFAM: PF00167; FGF; 1.
 A25043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity
nes 124; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      155 AA;
                    B25043;
C25043;
                                                       A24477;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LT 6
FGF1_CHICK
P19596;
01-FEB-1991 (
 A25043;
                                                                                                                                                                                                                                     1D-structure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRAND
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local
                                                                                                                                                                                                                                                                                                                         MOD_RES
BINDING
                                                                                                                                                                                                                                                                                                                                                            BINDING
STRAND
TURN
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HELIX
STRAND
STRAND
STRAND
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAND
STRAND
TURN
STRAND
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRAND
                                                                                                                                                                                                                                                    PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRAND
                                                                                                                                                                                                                                                                     CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    rurn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
ID FG
AC P1
DT 01
DT 01
 පු
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@lsb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Science 251:90-93(1991).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE OF 16-45.
MEDLINE: 89231704.
Quinkler W., Maasberg M., Bernotat-Danielowski S., Luethe N.,
Sharma H.S., Schaper W.;
"Isolation of heparin-binding growth factors from bovine, porcine and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -i- MISCELLANBOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
THAN DOES BFGF.
-i- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                          Gimenez-Gallego G., Rodkey J., Bennett C., Rios-Candelore M.,
Disalvo J., Thomas K.;
"Brain-derived acidic fibroblast growth factor: complete amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDIJNE; 91095983.

Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
Hsu B.T., Rees D.C.;

"Three-dimensional structures of acidic and basic fibroblast growth
Crabb J.W., Armes L.G., Carr S.A., Johnson C.M., Roberts G.D., and all in S., McKeehan W.L.;
"Complete primary structure of prostatropin, a prostate epithelial cell growth factor.";
                                                                                                                                                                                                                                                                                                                                                                                            Abraham J.A., Margia A., Whang J.L., Tumolo A., Friedman J., Hjerrild K.A., Gospodarowicz D., Fiddes J.C.; "Nucleotide sequence of a bovine clone encoding the anglogenic protein, basic fibroblast growth factor."; Science 233:545-548(1986).
                                                                                                                                                                                                                                                               MEDLINE, 86055750.

Boehlen P., Esch F., Baird A., Gospodarowicz D.;

"Acidic fibroblast growth factor (FGF) from bovine brain:
amino-terminal sequence and comparison with basic FGF.";

EMBO J. 4:1951-1956(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE OF 1-18 FROM N.A.
Philippe J.M., Renaud F., Desset S., Laurent M.;
Submitted (JUL-1992) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CONCENTRATION OF THESE 2 GROWTH FACTORS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
                                                                                                                                                                                                                                                SEQUENCE OF 16-44, AND COMPOSITION. MEDLINE; 86055750.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eur. J. Biochem. 181:67-73(1989)
                                                                   iochemistry 25:4988-4993(1986)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; M13439; AAA30516.1; -.
                                                                                                                                                                                              sequence and homologies.";
Science 230:1385-1388(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                X13221; CAA31610.1; -. X14032; CAA32192.1; -.
                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE OF 16-56 FROM N.A. MEDLINE; 86261806.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                . M35608; AAA30517.1; -

: X66446; CAA47063.1; -

: M97660; AAA30563.1; -

: M97661; AAA30564.1; -
                                                                                                                       MEDLINE; 86070224.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; M97660; AAA3C
EMBL; M97661; AAA3C
PIR; A01385; GKBOA
                                                                                                          SEQUENCE OF 16-155
```

factors.

MBL; EMBL; EMBL;

ö

ö

Length 155; Indels ဖ

```
DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                    SOUTH STATE 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its mon-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Risau W., Gautschi-Sova P., Boehlen P.;
"Endothelial cell growth factors in embryonic and adult chick brain are related to human acidic fibroblast growth factor.";
EMBO J. 7:959-962(1988).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -!- SUBUNIT: MONOMER.
-!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
THAN DOES BFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        15-JUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST
GROWTH FACTOR) (AFGF) (ALPHA-ENDOTHELIAL CELL GROWTH FACTOR).
                                                                                Galius galius (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AMDTNGLLYGSQLPGEECLFLERLEENHYNTYISKKHADKNWFVGLKKNGNSKLGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21 GNYKKPKLLYCSNGGHFLRILPDGKVDGTRDRSDQHIQLQLSAEDVGEVYIKSTASGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ENDOTHELIAL CELL GROWTH FACTOR ALPHA-
HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
8EDB70545E2B4365 CRC64;
                                                                                                                                                                                                                                                     "Differentiating and mature neurons express the acidic fibroblast growth factor gene during chick neural development.";
Development 111:1143-1154(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HEPARIN-BINDING GROWTH FACTOR 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; 031863; AAA80310.1; --
EMBL; S63261; AAD19342.1; --
PIR; S02639; S02639.
HSSP; P00230; 2AXM.
HSSP; P001052; ILLHBGF.
PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7; Indels
                                                                                                                                                                                                                                                                                                                                                             Martin G.R., Han J.K.;
Submitted (JUL-1995) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 916; DB 1; L. Pred. No. 1.62e-201; 6; Mismatches 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       155 AA; 17322 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; S63263; AAB19629.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60.2%; (larity 90.4%; )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         141 GQKAILFLPLPVSAD 155
                                                                                                                                                                                        SEQUENCE FROM N.A.
MEDLINE, 91347925.
Schnurch H., Risau W.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                          [2]
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE OF 22-48.
                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE; 88296438
                                                                FGF1 OR FGF-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BINDING
                                                                                                                                                       Gallus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
```

'n

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -i - FUNCTION: CAN TRANSFORM NIH 3T3 CELLS. EXHIBITS STRONG MITOGENIC AND ANGIOCENIC PROPERTIES (BY SIMILARITY).
-i - SUBCELLULAR LOCATION: EXTRACELLULAR.
-i - TISSUE SPECIFICITY: EMBRYOS, ADULT MUSCLES AND ADDLT TESTIS.
-i - SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                71 GVNWESGYLVGIKRQ----R-RL-YCNVGIGFHLQVPPDGRISGTHE-ENPYSLLEISTV 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11 MSRGAGRVQGTLQALVFLGVLVGMVVPSPAGARANGTLLDSRGWGTLLSRSRAGLAGEIS 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             31; Mismatches 50; Indels 10; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE: 90295275.

de Lapeyritere O., Rosnet O., Benharroch D., Raybaud F.,
Marchetto S., Planche J., Galland F., Mattei M.-G., Copeland N.G.,
Jenkins N.A., Coulier F., Birnbaum D.;
                                                                                                                                                                             Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                ·
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Structure, chromosome mapping and expression of the murine Fgf-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-MAX-1991 (Rel. 18, Created)
01-NOV-1995 (Rel. 32, Last sequence update)
01-NOV-1995 (Rel. 32, Last annotation update)
FIBROBLAST GROWTH FACTOR-6 PRECURSOR (FGF-6) (HBGF-6) (HST-2).
                                                                                                                                                                                                                                                                                                                                                                arics I., Birnbaum D., Delapeyriere the murine Fgf6 cDNA.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 702; DB 1; Length 208; Pred. No. 1.78e-145;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FIBROBLAST GROWTH FACTOR-6 POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                POTENTIAL.
BBF7B9301BB79A1B CRC64;
  208 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          POTENTIAL.
  PRT;
                                                                                                                                                                                                                                                                                                                                                          Ollendorf V., Rosnet O., Marics "Isolation and sequence of the m Biochimie 74:1035-1038(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  208 FI
45 PO
157 PO
22798 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE OF 11-208 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Match 46.1%;
Local Similarity 55.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             114; Conservative
  STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Oncogene 5:823-831(1990)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        208 AA;
                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                          TISSUE-EMBRYO;
MEDLINE; 93120244.
                                                                                                                                                        FGF6 OR FGF-6.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Glycoprotein.
SIGNAL
FGF6_MOUSE
P21658;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
```

;

Transforming protein; Oncogene; Growth factor; Mitogen; Signal;

```
g
                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                  å
                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE, 99201800.

Marics I., Adelaide J., Raybaud F., Mattei M.-G., Coulier F.,
Planche J., de Lapeyriere O., Binbum D.;
Planche J., de Lapeyriere O., Binbum D.;
Characterization of the HST-related FGF.6 gene, a new member of the
fibroblast growth factor gene family.";
Oncogene 4:35-340(1989).
-!- FUNCTION: CAN TRANSFORM NH 3T3 CELLS. EXHIBITS STRONG MITOGENIC
AND ANGIOGENIC PROPERTIES.
-!- SUBCELLULAR LOCATION: EXTRACELLULAR.
-!- SUBCELLULAR LOCATION: EXTRACELLULAR.
-!- TISSUE SPECIFICITY: LEUKEMIA CELL LINES WITH PLATELET/
MEGARARYCOTIC DIFFERENTIATION POTEWTIAL.
-!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                 ERGVVSLFGVKSALFIAMNSKGRLYTTPSFHDECKFRETLLPNNYNAYESDLYRGT--YI 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE OF 11-208 FROM N.A.
MEDLINE, 92195660.
Iida S., Yoshida T., Naito K., Sakamoto H., Katoh O., Hirohashi S., Sato T., Onda M., Sugimura T., Terada M.;
"Human hst-2 (FGF-6) oncogene: cDNA cloning and characterization.";
                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
MEDLINE; 91360279.
Coulier F., Batoz M., Marics I., de Lapeyriere O., Birnbaum D.;
"Putative structure of the FGF6 gene product and role of the signal
                                                                                                                                                                                                                                                                                                                 Eukaryota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalla; Eutheria; Primates; Catarrhini; Hominidae; Homo
                                                                                                                                                                                                           01-JUL-1989 (Rel. 11, Created)
01-NOV-1995 (Rel. 32, Last sequence update)
01-OCT-1996 (Rel. 34, Last annotation update)
FIBROBLAST GROWTH FACTOR-6 PRECURSOR (FGF-6) (HBGF-6) (HST-2).
                                                                                                                                                                                208 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; X57075; CAA40358.1; --
EMBL; X57075; CAA40359.1; ALT_INIT.
EMBL; X57075; CAA40350.1; ALT_INIT.
EMBL; X63454; CAA45054.1; --
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; X14071; -; NOT_ANNOTATED_CDS
EMBL; X14072; CAA32233.1; -.
                                                                              ALSKYGRVKRGSKVSPIMTVTHFLP 206
                                                                                                   :| | | | | |||:
180 GLKKNGSCKRGPRTHYGQKAILFLP 204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PFAM; PF00167; FGF; 1.
PRINTS; PR00262; ILIHBGF.
PRUNTS; PR00263; HBGFEGF.
PROSITE; PS00247; HBGF_FGF: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  X14073; CAA32234.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 81-208 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Oncogene 6:1437-1444(1991).
                                                                                                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                               sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PIR; S04204; S04204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 P09038; 1BLD.
                                                                                                                                                                                                                                                                                 FGF6 OR HST2.
                                                                                                                                                                          FGF6_HUMAN
P10767;
                                                                                                                                                                                                                                                                                                                                                                                                                                  peptide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HSSb;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL;
                                                                              182
             124
                                                                                                                                                                RESULT
                                                                                                                                                                                ò
                                                                            셤
                                                                                                            ò
```

```
RY MEDLINE; 93246053.
RA MEDLINE; 93246053.
RA MEDLINE; 93246053.
RA BOTJA A.Z., Zeller R., Meijers C.;
RT "Expression of alternatively spliced bFGF first coding exons and RT antisense mRMs during chicken embryogenesis.";
RI antisense mRMs during chicken embryogenesis.";
RL Dev. Biol. 157:110-118(1993).
CC 'ITHOLION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS CC 'ITHOL AND ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CC VITRO. THERE 2 GROWTH FACTORS.
CC ONDERTRATION OF THESE 2 GROWTH FACTORS.
CC CONDENTRATION OF THESE 2 GROWTH FACTORS.
CC "ITHOLIC MONOMER."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bloinformatics and the EMBL outstation the European Bloinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is un no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.:h/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                    7;
                                                                                                                                                                                                                                                                                     71 GVNWESGYLVGIKRQ----R-RL-YCNVGIGFHLQVLPDGRISGTHE-ENPYSLLEISTV 123
                                                                                                                                                                                                                                                                                                                                    124 ERGVVSLFGVRSALFVAMNSKGRLYATPSFQEECKFRETLLPNNYNAYESDLY-QGT-YI 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostoml;
Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
Gallus.
                                                                                                                                                                                                                   01-FEB-1996 (Rel. 33, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
                                                                                                                                                                                                 11 MSRGAGRLQGTLWALVFLGILVGMVVPSPAGTRANNTLLDSRGWGTLLSRSRAGLAGEIA 70
                                                                                                                                                                    Gaps
                                                                                                                                                                  50; Indels 10;
                                                                                                                                 Score 681; DB 1; Length 208; Pred. No. 5.00e-140;
                               GROWTH FACTOR-6.
                                                                              -> G (IN REF. 3).
79EF44685B324322 CRC64;
                                                                                                                                                                35; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ź
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          158
               POTENTIAL.
FIBROBLAST G
POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                     182 ALSKYGRVKRGSKVSPIMTVTHFLP 206
                                                                                                                                                                                                                                                                                                                                                                                                                            PRINTS; PRO0262; ILLHBGF.
PRINTS; PRO0263; HBGFFGF.
PROSITE; PS00247; HBGF_FGF; 1.
                                                                                                 MW.
                                                                                                                               44.7%;
larity 53.7%;
Conservative
                        7 208
45 45
90 157
100 100
208 AA; 22904 M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; M95707; AAA48617.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FGF2 OR FGF-2.
Gallus gallus (Chicken).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GROWTH FACTOR) (BFGF).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HSSP; P09038; 1BFF.
PFAM; PF00167; FGF; 1.
                                                                                                                                                Local Similarity
es 110; Conserv
Glycoprotein
SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CHICK
                                                             DISULFID
CONFLICT
SEQUENCE
                                                CARBOHYD
                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          P48800;
                                 CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FGF2
```

factor; Mitogen; Vascularization; Heparin-binding.

```
Growth PROPEP
                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                                                                                                                       음
                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                             XFFFFF S
                                                                                                                                                                                 ð
                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      This SWISS-PROT entry is copyright. It is produced through a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEBS Lett. 224:128-132(1987).
-!- FUNCTION: THE HEPARIN BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -! - SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                              -!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                87 AMKEDGRILLALKCATEECFFFERLESNNYNTYRSRKYSD--WYVALKRTGQYKPGPKTGP 144
                                                                                                                                 27 GHFKDPKRLYCKNGGFFLRINPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVSANRFL 86
                                                                                                                                                                                                                                                                                                                                       01-FEB-1996 (Rel. 33, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
01-FEB-1996 (Rel. 33, Last annotation update)
GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTATROPIN).
                                                                                                           2; Gaps
                                                                                                                                                                                                                                                                                                                                                                                               Ovis aries (Sheep).
Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE; 88055577.
Simpson R.J., Moritz R.L., Lloyd C.J., Fabri L.J., Nice E.C., Simpson R.J., Moritz R.W.;
Rubira M.R., Burgess A.W.;
"Primary structure of ovine pituitary basic fibroblast growth
                        ď
                       HEPARIN-BINDING GROWTH FACTOR
                                                                                   Length 158;
                                                                                                           36; Indels
Heparin-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
Sutton R., Ward W.G., Raphael K.A., Cam G.R.;
Submitted (SEP-1994) to the EMBL/GenBank/DDBJ databases.
                                                           7B69B684C17F1816 CRC64;
                                     (POTENTIAL)
                                                 (POTENTIAL)
                                                                                  Score 522; DB 1;
Pred. No. 3.26e-99;
                                                                                                           23; Mismatches
                                                                                                                                                                                                                                                                                                     155 AA.
            BY SIMILARITY.
 Mitogen; Vascularization;
                                    HEPARIN
                                                 HEPARIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; L36136; AAA31519.1; -. PIR; SO0185; SO0185. PLSP. P09038, 1BFF. PFAM; PF00167; FGF; 1. PRINTS; PR00262; L1HBGF. PRINTS; PR00263; HBGFFGF. PROSITE; PS00247; HBGFFGF.
        12,
158
34
122
17374 MW;
                                                                                                                                                                                                                                                                                      T 10 FGF2_SHEEP STANDARD; F P20003; 01-FEB-1991 (Rel. 17, Created)
                                                                                  similarity 54.5%; 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                     Bovidae; Caprinae; Ovis.
                                                                                                                                                                                                                               145 GOKAILFLPMSAKS 158
                                                                                                                                                                                                                                                      196 GOKAILFLPLPVSS 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SUBUNIT: MONOMER
                      13 1
30
119 1
158 AA;
                                                                                              Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                      FGF2 OR FGF-2
                                                                                  Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                          SEQUENCE
                                    BINDING
                                            BINDING
                          CHAIN
                                                                                                                                                                                                                                                                                       ਰ
                                                                                                                                                         ô
                                                                                                                                                                                엄
                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                       ò
```

```
23-OCT-1986 (Rel. 02, Created)
23-OCT-1986 (Rel. 33, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING, GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTATROPIN) [CONTAINS: KIDNEY-DERIVED GROWTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Esch F., Baird A., Ling N., Ueno N., Hill F., Denoroy L., Klepper R., Gospodarowicz D., Boehlen P., Guillemin R.; Primary structure of bovine pituitary basic fibroblast growth factor (FGF) and comparison with the amino-terminal sequence of bovine brain
                                                                                                                                                                                                                                                                                                                      84 AMKEDGRILLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGPKTGP 141
                                                                                                                                                                                                                                                                                            24 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL 83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.; "Human basic fibroblast growth factor: nucleotide sequence, genomic organization, and expression in mammalian cells."; Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDIJNE; 86295737.
Ueno N., Baird A., Esch F., Ling N., Guillemin R.;
"Isolation of an amino terminal extended form of basic fibroblast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FGF2 OŘ FGF-2. .
Bos taurus (Bovine).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
MEDLINE; 86261806.
Abraham J.A., Mergia A., Whang J.L., Tumolo A., Friedman J.,
Hjerrild K.A., Gospodarowicz D., Fiddes J.C.;
"Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fibroblast growth factor.";
                               CELL ATTACHMENT SITE (POTENTIAL).
                                                                                                                                                                                                                                         5,
          HEPARIN-BINDING GROWTH FACTOR 2..
                                                                                                                                                                                    Score 516; DB 1; Length 155;
Pred. No. 1.08e-97;
22; Mismatches 36; Indels
                                                                                                                                       B5F2364BA610606D CRC64;
                                                                                  HEPARIN (POTENTIAL). HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Proc. Natl. Acad. Sci. U.S.A. 82:6507-6511(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Commun. 138:580-588(1986)
     155
48
CE
90
CE
31
HE
119
HE
17280 MW;
                                                                                                                                                                                    33.9%;
Local Similarity 55.2%;
hes 74; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 protein, basic fibroblast science 233:545-548(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   142 GOKAILFLPMSAKS 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                196 GOKAILFLPLPVSS 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Biochem. Biophys. Res.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bovidae; Bovinae; Bos.
10
45
87
27
116
155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE OF 10-155.
MEDLINE; 86016731.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       [5]
SEQUENCE OF 25-41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE; 87217066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE OF 1-9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             acidic FGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                r 11
FGF2_BOVIN
                                                                                                                                       SEQUENCE
                                                                                                                                                                                          Query Match
                                                                                     BINDING
                                                                                                            BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                P03969
             CHAIN
```

σ

```
RESULT
     셤
                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                         엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMED outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                     TISSUE-KIDNEY;
MEDIINE: 86095426.
MEDIINE: B6095426.
MEDIINE: BSCh F., Boehlen P., Ling N., Gospodarowicz D.;
*Isolation and partial characterization of an endothelial cell growth factor from the bovine kidney: homology with basic fibroblast growth
                                                                                                                                                                            Ueno N., Baird A., Esch F., Shimasaki S., Ling N., Guillemin R., "Purification and partial characterization of a mitogenic factor from bovine liver: structural homology with basic fibroblast growth

    -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.

                                                                                                                                                                                                                                                                        X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
MEDLINE; 91095983.
MEDLINE; Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
Hsu B.T., Rees D.C.,
"Three-dimensional structures of acidic and basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KIDNEY-DERIVED GROWTH FACTOR.
CELL ATTACHMENT SITE (POTENTIAL)
CELL ATTACHMENT SITE (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HEPARIN-BINDING GROWTH FACTOR 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding; 3D-Structure. 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HEPARIN (POTENTIAL). HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                            Regul. Pept. 16:135-145(1986).
                                                                                             Regul. Pept. 12:201-213(1985)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; M13440; AAA30518.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PDB; 1BAS; 31-OCT-93.
PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PIR; A24663; GKBOB.
PIR; A24819; A24819.
PIR; A32878; A32878.
                                                                                                                                                               MEDLINE; 87119165.
                                                                                                                                SEQUENCE OF 21-40.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FISSUE-KIDNEY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CHAIN
CHAIN
SITE
SITE
BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAND
TURN
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HELIX
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAND
TURN
STRAND
                                                                                                                                                                                                                              factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           URN
   RAY RELEASE OF SERVICE OF SERVICE
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@lsb-sib.ch).
                                                                                                                                                                                                                                                                                                        ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   84 AMKEDGRILLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGPKTGP 141
                                                                                                                                                                                                                                                                                                                                                                                                                              -!- SÜBÜNIT: MONOMER.
-!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-APR-1990 (Rel. 14, Created)
01-APR-1990 (Rel. 14, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTATROPIN).
                                                                                                                                                                                                                                                                                                                                        24 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL 83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                        ;
                                                                                                                                                                                                                                                                     Length 155
                                                                                                                                                                                                                                17250 MW; BE6CE70FA6107129 CRC64;
                                                                                                                                                                                                                                                                   Score 516; DB 1; Pred. No. 1.08e-97;
                                                                                                                                                                                                                                                                                                      22; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           154 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; M30644; AAA37621.1; -.
                                                                                                                                                                                                                                                                     33.98;
                                                                                                                                                                                                                                                                                    Local Similarity 55.2%;
les 74; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GOKAILFLPMSAKS 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   196 GOKAILFLPLPVSS 209
101
107
110
1117
1124
1127
1130
1138
1138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PIR; C37360; C37360.
HSSP; P09038; IBFF.
MGD; MGI:95516; FGF2.
PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                  155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A. MEDLINE; 90201563.
99
1103
1113
1121
1124
1129
1133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FGF2 OR FGF-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FGF2_MOUSE
P15655;
                                                                                                                                                                                                                STRAND
SEQUENCE
                                                                                                                                                                                                                                                                   Query Match
                                   TURN
                                                                                      STRAND
STRAND
TURN
                                                                                                                                          STRAND
                                                                                                                                                            HELIX
                                                                                                                                                                                               HELIX
                                                                                                                                                                                                                                                                                        Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  142 (
                                                                      TURN
                                                                                                                                                                               TURN
```

10

Page

US-09-121-017B-27.rsp

```
VITRO. THERE ARE CONCENTRATION OF
                                                                                                                                                                                                                                                                                          154 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               [2]
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FGF2_HUMAN
P09038;
                                                                                                                                                                                                                                                                                BINDING
                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                               CHAIN
BINDING
                                                                                                                                                                                                                                                       PROPEP
                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                     Best
ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                ద
                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE; 89061721.
Shimasaki S., Emoto N., Koba A., Mercado M., Shibata F.,
Cooksey K., Baird A., Ling N.;
Complementary DNA cloning and sequencing of rat ovarian basic
fibroblast growth factor and tissue distribution study of its mRNA.";
Biochem. Biophys. Res. Commun. 157:256-263(1988).
                                                                                                                                    83 AMKEDGRILASKCVTEECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGSKTGP 140
                                                                                                                                                                       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
                                                                                                                                                                                                                                                                     01-07N-1990 (Rel. 13, Created)
01-07N-1990 (Rel. 13, Last sequence update)
15-JUL-1998 (Rel. 36, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTAIROPIN).
                                                                                                                           23 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYL 82
                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Kurokawa T., Seno M., Igarashi K.;
"Nucleotide sequence of rat basic fibroblast growth factor cDNA.";
Nucleic Acids Res. 16:5201-5201(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              promoter region and cells.";
                                           7
                                             HEPARIN-BINDING GROWTH FACTOR
                                                                                         Length 154;
                PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
PROPEP
                                                                                                  Pred. No. 1.15e-95;
23; Mismatches 36; Indels
                                                              EPARIN (POTENTIAL).
689F677416274388 CRC64;
                                                    HEPARIN (POTENTIAL).
                                                                                        ; DB 1; I
1.15e-95;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pasumarthi K.B.S., Jin Y., Cattini P.A.; "Cloning of the rat fibroblast growth factor-2 its response to mitogenic stimuli in glioma C6 I.Neurochem. 68:898-908(1997).
                                                                                                                                                                                                                                                      154 AA
                                                                                         Score 508;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE OF 1-28 FROM N.A. STRAIN-SPRAGUE-DAWLEY; TISSUE-TESTIS;
                                                                                                                                                                                                                                                                                                                                                                        STRAIN-SPRAGUE-DAWLEY; TISSUE-OVARY;
                                                                                                                                                                                                                                                       PRT;
                                                                       17153 MW;
                                                                                         33.48;
                                                                                                Local Similarity 54.5%;
les 73; Conservative
                                                                                                                                                                                                                                                      STANDARD;
                                                                                                                                                                                                                                                                                                                            (Rat)
                                                                                                                                                                                                GOKAILFLPMSAKS 154
                                                                                                                                                                                                           154
30
118
                                                                       154 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE; 97200905.
                                                                                                                                                                                                                                                                                                                            Rattus norvegicus
                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE; 88262516.
PRINTS; PR00262;
PRINTS; PR00263;
                                          10
26
115
                                                                                                                                                                                                                                                                                                                    FGF2 OR FGF-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                       TISSUE-BRAIN
                                                                                                                                                                                                                                                     FGF2_RAT P13109;
                                                                       SEQUENCE
                                                                                         Query Match
                                                     BINDING
                                                             BINDING
                                                                                                                                                                                                                                              13
                                             CHAIN
                                                                                                  Best Loca
Matches
                                                                                                                                                                                                  141
                                                                                                                                                                                                                                                      STITION
                                                                                                                           셤
                                                                                                                                                                                                  셤
                                                                                                                                             à
                                                                                                                                                                                                                  ö
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its muse by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                             -:- SUBUNIT: MONOMER.
-:- TISSUE SPECIFICITY: FOUND IN ALL THE TISSUES EXAMINED.
-:- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     83 AMKEDGRILLASKCVTEECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGSKTGP 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-NOY-1988 (Rel. 09, Created)
01-NOY-1988 (Rel. 09, Last sequence update)
01-NOY-1997 (Rel. 35, Last annotation update)
HEPANOY-1997 (Rel. 35, Last annotation update)
HEPANOY-1997 (Rel. 35, Last annotation update)
HEPANOY-1997 (Rel. 95, Last annotation update)
FORDWITH FACTOR (BFGF) (PROSTATROPIN).
FGF2 OR FGFB.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     23 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYL 82
                                                                                                                                                                                               -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Euteleostomi;
DIFFERENCES IN THE TISSUE DISTRIBUTION AND THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
MEDLINE, 87053817.
Abraham J.A., Whang J.L., Tumolo A., Mergia A., Friedman J.,
Gospodarowicz D., Fiddes J.C.,
"Human basic fibroblast growth factor: nucleotide sequence and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HEPARIN-BINDING GROWTH FACTOR HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 1; Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFGF.
PR0STE; PR00247; HBGFEF. 1.
Growth factor; Mitogen; Vascularization; Heparin-binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1A0F14FF423D8403 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; E
Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          33.4%; Score 508; DB 1; I 54.5%; Pred. No. 1.15e-95;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       23; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              155 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            17139 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; M22427; AAA41210.1; -.
EMBL; X07285; CAA30265.1; -.
EMBL; U78079; AAC53225.1; -.
EMBL; X61697; CAA43863.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local Similarity 54.5%;
nes 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBO J. 5:2523-2528(1986)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 154
30
118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     196 GQKAILFLPLPVSS 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     141 GQKAILFLPMSAKS 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PIR; S00876; S00876.
PIR; A31674; A31674.
HSSP; P09038; IBFF.
PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              genomic organization.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens (Human)
```

```
X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PIR;
PIR;
PIR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PIR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PDB;
PDB;
PDB;
PDB;
PDB;
  THE TELETICAL STREET ST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE; 87156686.
Story M.T., Esch F., Shimasaki S., Sasse J., Jacobs S.C., Lawson R.K.; Amino-terminal sequence of a large form of basic fibroblast growth factor isolated from human benign prostatic hyperplastic tissue."; Biochem. Biophys. Res. Commun. 142:702-709(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Zhang J., Cousens L.S., Barr P.J., Sprang S.R.; "Three-dimensional structure of human basic fibroblast growth factor, a structural homolog of interleukin 1 beta."; Proc. Natl. Acad. Sci. U.S.A. 88:3446-3451(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gautschi P., Frater-Schroeder M., Boehlen P.;
"Partial molecular characterization of endothelial cell mitogens from human brain: acidic and basic fibroblast growth factors.";
FEBS Lett. 204:203-207(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eriksson A.E., Cousens L.S., Matthews B.W.; "Refinement of the structure of human basic fibroblast growth factor at 1.6-A resolution and analysis of presumed heparin binding sites by
                   Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.;
"Human basic fibroblast growth factor: nuclectide sequence, genomic
organization, and expression in mammalian cells.";
Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.; "Human brain-derived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitogenic activities."; Biochem. Biophys. Res. Commun. 135:541-548(1986).
                                                                                                                                                              Sommer A., Brewer M.T., Thompson R.C., Moscatelli D., Presta M., Rifkin D.B.;
"A form of human basic fibroblast growth factor with an extended
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            High molecular mass forms of basic fibroblast growth factor are
                                                                                                                                                                                                                                                                                                                              Kurokawa T., Sasada R., Iwane M., Igarashi K.,
"Cloning and expression of cDNA encoding human basic fibroblast
growth factor.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eriksson A.E., Cousens L.S., Weaver L.H., Matthews B.W.; "Three-dimensional structure of human basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Prats H., Kaghad M., Prats A.C., Klagsbrun M., Lelias J.M.,
Liauzun P., Chalon P., Tauber J.P., Amalric F., Smith J.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Proc. Natl. Acad. Sci. U.S.A. 88:3441-3445(1991).
                                                                                                                                                                                                                                                Biochem. Biophys. Res. Commun. 144:543-550(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               initiated by alternative CUG codons.";
Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          K-RAY CRYSTALLOGRAPHY (1.8 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        K-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              selenate substitution.";
Protein Sci. 2:1274-1284(1993).
                                                                                                                                                                                                                                                                                                                                                                                           Lett. 213:189-194(1987)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE; 94004464.
                                                                                                                       SEQUENCE FROM N.A. MEDLINE; 87213238.
                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE OF 10-39.
MEDLINE; 86186784.
                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A. MEDLINE; 89184522.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE OF 10-35.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    86275260.
MEDLINE; 87217066
                                                                                                                                                                                                                                                                                                               MEDLINE; 87162468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE; 91195367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE OF 2-22
                                                                                                                                                                                                                               terminus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                factor
                                                                                                                                                                                                                               amino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Caput
                                                                                                                                                                                                                                                                                                                                                                                               FEBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       []
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bloinformatics and the EMBL outstation the Buropean Bloinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@lib-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  spectroscopy.";
Biochemistry 35:13552-13561(1996).
-!- FUNCTION: THE HEBRAIN-BINDING GROWTH FACTORS ARE AMGIOGENIC AGENTS
-!- FUNCTION: THE HEBRAIN-BINDING GROWTH FACTORS ARE AMBIOTOR AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CHEL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE IISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                      STRUCTURE BY NMR.
MEDLINE; 97040521.
MOY F.J., Seddon A.P., Boehlen P., Powers R.;
High-resolution solution structure of basic fibroblast growth factor determined by multidimensional heteronuclear magnetic resonance
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -!- SUBUNIT: MONOMER.
-!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                            MEDLINE; 91095983.
Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
Hau B.T., Rees D.C.;
"Three-dimensional structures of acidic and basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HEPARIN-BINDING GROWTH FACTOR 2. CELL ATTACHENT SITE (POTENTIAL). CELL ATTACHMENT SITE (POTENTIAL). HEPARIN (POTENTIAL).
MEDLINE; 92121151.
Ago H., Kitagawa Y., Fujishlma A., Matsuura Y., Katsube Y.;
"Crystal structure of basic fibroblast growth factor at 1.6-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRINTS; PR00262; IIJHBGF.
PRINTS; PR00263; HBGFPGF.
PR0SITE; PS00247; HBGF_GF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding;
                                                                                                                                                    X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; M17599; AAA52534.1; ALT_INIT.

EMBL; X04431; CAA28027.1; -.

EMBL; X04432; CAA28028.1; -.

EMBL; X04433; CAA28029.1; -.

EMBL; M27968; AA552448.1; -.

EMBL; A25824; A25824.
                                                                                                  Biochem. 110:360-363(1991).
                                                                                                                                                                                                                                                                                                         Science 251:90-93(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    155
48
90
31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                31-JAN-94.
30-APR-94.
08-NOV-96.
08-NOV-96.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15-JUL-93.
03-APR-96.
03-APR-96.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15-JUL-93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           16-JUN-97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B32878.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2FGF; 15-APR-92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       10
10
46
88
88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B24243;
B24301;
B32878;
S00297;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3D-structure.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A26642;
                                                                               resolution.'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1FGA;
1BFB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1BFC;
1BFF;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4 FGF;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1BFG;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1BLA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2BFH;
                                                                                                                                                                                                                                                                                   factors."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SITE
SITE
BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
```

```
셤
                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                    d
                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLIRE; 94296558.

Kusewitt D.F., Sabourin C.L.K., Sherburn T.E., Ley R.D.;

Kusewitt D.F., Sabourin C.L.K., Sherburn T.E., Ley R.D.;

Kusewitt D.F., Sabourin C.L.K., Sherburn T.E., Ley R.D.;

Characterization of cDNA encoding basic fibroblast growth factor of

the marsupial Monodelphis domestica.";

DNA Cell Biol. 13:549-554 (1994).

-1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIGGENIC AGENTS

IN VIVO AND ARE POTENT MITGENS FOR A VARIETY OF CELL TYPES IN

VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND

CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                            84 AMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYT--SWYVALKRTGQYKLGSKTGP 141
                                                                                                                                                                                                                                                                                                                                                                                                  MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-FEB-1996 (Rel. 33, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
01-NOV-1997 (Rel. 35, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTATROPIN).
                                                                                                                                                                                                                                                                                                                                                24 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL 83
                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Monodelphis domestica (Short-tailed grey opossum).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Metatheria; Didelphimorphia; Didelphidae; Monodelphis.
                                                                                                                                                                                                                                                                                                        Score 509; DB 1; Length 155; Pred. No. 6.42e-96;
                                                                                                                                                                                                                                                                            152
17254 MW; BE6CE13373007129 CRC64;
 HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                         33.4%;
larity 54.5%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                           196 GQKAILFLPLPVSS 209
                                                                                                                                                                                                                                                                                                                                                                                                                              142 GQKAILFLPMSAKS 155
                                                                                                                                                                                                                                                                                                                Local Similarity
nes 73; Conser
                                                                                                                                                                                                                                                                                    155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FGF2_MONDO
P48798;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LISSUE-EYE;
                                                                                                                                                                                                                                                                            STRAND
SEQUENCE
                                                                                                                                                                                                                                                                                                         Query Match
 BINDING
                    TURN
STRAND
TURN
STRAND
                                                                                                                                                    HELIX
STRAND
                                                                                                   STRAND
                                                                                                                                                                                STRAND
                                                                                                                                                                                                    STRAND
STRAND
TURN
                                                                     HELIX
STRAND
TURN
                                                                                                                               TURN
                                                                                                                       STRAND
                                                                                                                                                                                                                                    STRAND
                                                                                                                                                                                                                                             TELIX
                                                                                                                                                                                                                                                                                                                   Best Loc
Matches
                                                                                                                                                                         TURN
셤
                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@ib-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           85 AMKEDGRILLALKYVTEECFFFERLESNNYNTYRSRKYS--NWYVALKRTGQYKLGSKTGP 142
AFGF.
SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                25 GHFKDPKRLYCKNGGFFLRIHPDGRVDGIREKSDPNIKLQLQAEERGVVSIKGVCANRYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Growth factor; Mitogen; Vascularization; Heparin-binding.
PROPEP 1 BY SIMILARITY.
CHAIN 10 156 HEPARIN-BINDING GROWTH FACTOR 2.
BINDING 18 120 HEPARIN (POTENTIAL).
SEQUENCE 156 AA; 17303 MW; 7E655FCC49BF1209 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 156;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 498; DB 1; Length 156
Pred. No. 3.89e-93;
22; Mismatches 37; Indels
                                                                                                                                                                                                                                                                                                       EMBL; Z15154; CAA78854.1; ALT_INIT.
HSSP; P09038; 1BFF.
PRAM; PF00167; EGF; 1.
PRINTS; PR00262; ILIHBGF.
PRINTS; PR00263; HBGFFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                  PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                32.7%;
llarity 54.5%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              143 GOKAILFLPMSAKS 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity
nes 73; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                        PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
```

Search completed: Tue Aug 29 16:10:27 2000 Job time : 11 secs.

### 13.0		-	<del>!</del>			- · · · · · · · · · · · · · · · · · · ·	•						
### ### ### ### ### ### ### ### ### ##		Biocomputing Research Unit. ersity of Edinburgh, U.K. / Oxford Molecular Ltd	rch, using Smith-Waterman al	MasPar time 18.71 Seconds 778.223 Million cell updates/s	7B.pep		residues	ries	fungi 4 :sp_mhc dent 12	70.528; scale 0	predicted by chance score of the result total score distribut	Description Pred.	BLAST GROWT  FYBROBLAST  GROWTH FACT  BROBLAST GROWT  BROBLAST GROWT  E GROWTH FACT  GROWTH FACT
######################################	* '	o11 8 igh	database	16:10:45	-017B-27 om-oso912101 QGTLQALVFLGV		69334122	08 45	a 2:s tebra 10:s ebrat		of resu qual to sis of t	1 80	6 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
tion:  coutput i table:  copyr.  cocessing  copyr.  cocessing  coc	* *	•	•	Tu ot	>US-09-121 (1-210 <del>) fr</del> 1522 1 MSRGAGRV			Minimum Listing	sptrembl12 1:sp_arc 5:sp_inv 9:sp_pha 13:sp_ve	44	the n than	Leng	
		Releas Copyr	MPsrch pp prot		Title: Description: Perfect Score: Sequence:	(D)	Searched:	Post-processing:	Database:	Statistics:	z o	6)	

2.64e-26 4.39e-26 5.52e-25 4.14e-24	3.08e-23 8.36e-23 4.44e-21 7.27e-21 1.59e-18	1.10e-17 2.88e-17 2.88e-17 2.31e-12	1.19e-04 5.81e-04 4.05e-03 1.84e-02 2.67e-02	3.87e-02 3.87e-02 5.59e-02 3.38e-01 3.38e-01 3.38e-01
GROWTH GROWTH G. GROWTH	FIBROBLAST GROWTH FACT R33683.2. FIBROBLAST GROWTH FACT FGF-ACMNPV ORF32. FGF-19.	GROWTH OBLAST G OBLAST G GROWTH	FIBROBLAST GROWTH FACT FIBROBLAST GROWTH FACT CONSERVED PROTEIN. REPI PROTEIN. HYPOTHETICAL 27.5 KD P	SIJAA LONG HYPOTHETICA SENSOR PROTEIN HOMOLOG REPJ PROTEIN. 109AA LONG HYPOTHETICA GORILLA MITOCHONDRIAL YHCK PROTEIN. FROM BASES 2019524 TO
Q90696 O57341 P91672 Q14915	042278 060371 Q9YMH2 092401 095750	097573 000527 016443 035340	062682 P79685 027154 051999	Q9YEE7 P72472 O52009 Q9YEV4 Q34573 P94746
13 13 4	4 4 4 4	114 4	14 1 13 6	777777
204 210 770 244	210 129 285 182 216	73 114 114 78	82 86 822 1128	211 410 1128 109 174 564 569
14.7 14.6 14.0	13.7 13.6 13.0 12.3	12.0	6.7 4.7 6.8 6.8	00000000
223 222 217 213	209 207 199 198	181 181 181	116 112 107 103	101 101 103 95 95
21 22 23 24	25 26 27 28 29	33 33 33 33	3 3 3 5 8 5 8 5 8 5 8 5 8 5 8 5 8 5 8 5	8 4 4 4 4 4 9 4 4 4 4 4 8 1 4 5 6 7 6 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9

## ALIGNMENTS

```
61 KEDGRLIASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGPKTGPGQ 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 FKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCF ARYLAM 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 511; DB 6; Length 130;
Pred. No. 3.73e-95;
21; Mismatches 36; Indels 5; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BYGF.

Canis familiaris (Dog).

Canis familiaris (Lanis).

Canis familiaris (Lanis).

Canis familiaris familiaris familiaris

Canis familiaris familiaris

Canis familia
                                                                                                                                                                                           01-NOV-1998 (TrEMBLrel. 08, Created)
01-NOV-1998 (TrEMBLrel. 08, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
                                                                            PRT; 130 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 33.6%;
Best Local Similarity 55.3%;
Matches 73; Conservative
                                                                            PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          198 KAILFLPLPVSS 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                119 KAILFLPMSAKS 130
RESULT 1
ID 077767
AC 077767;
                                                                            DAC DOTA DATA DA LA PARTA DA L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
```

196 AA.

PRT;

PRELIMINARY;

RESULT 2 ID P78443 US-09-121-017B-27.rspt

```
Gallus gallus (Chicken)
                                                                 Local Similarity
les 75; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TISSUE-EMBRYO;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KANEDA T.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NON_TER
SEQUENCE
             PROSITE;
SEQUENCE
                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                      TT 4
P79706
P79706;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SO SO
                                                                                                         엄
                                                                                                                                  õ
                                                                                                                                                           셤
                                                                                                                                                                                        δ
                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                    ద
                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "Identification of a fibroblast growth factor 6 (FGF6) gene in a non-mammalian vertebrate: continuous expression of FGF6 accompanies muscle fiber hyperplasia.";
                                                                                                                                  SEQUENCE FROM N.A.
MEDILIDE, 89184522.
MEDILIDE, 8184522.
ELAUZUN P., CHALON P., TAUBER J.P., AMALRIC F., SMITH J.A., CAPUT D.;
"High molecular mass forms of basic fibroblast growth factor are
initiated by alternative CUG codons.";
proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         65 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        125 AMKEDGRILLASKCVTDECFFFERLESNNYNTYRSRKYT--SWYVALKRTGQYKLGSKTGP 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Oncorhynchus mykiss (Rainbow trout) (Salmo gairdneri).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Actinopterygii;
Neopterygii; Teleostei; Euteleostei; Protacanthopterygii;
                                                                                                                                                                                                                                                                                           "Reverse transcription with nested polymerase chain reaction shows sepression of basic fibroblast growth factor transcripts in human granulosa and cumulus cells from in vitro fertilisation patients."; Biochem. Biophys. Res. Commun. 187:1227-1231(1992).
                                                                                           Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                WATSON R., ANTHONY F., PICKETT M., LAMBDEN P., MASSON G.M., THOMAS E.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 509; DB 4; Length 196;
Pred. No. 1.18e-94;
23; Mismatches 36; Indels
           01-MAY-1997 (TrEMBLrel. 03, Created)
01-MAY-1997 (TrEMBLrel. 03, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
21 KD BASIC FIBROBLAST GROWTH FACTOR (BFGF).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-MAY-1999 (TrEMBLrel. 10, Created)
U-MAY-1999 (TrEMBLrel. 10, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
FIBROBLAST GROWTH FACTOR 6-RELATED PROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                         PFAM; PF00167; FGF; 1.
PRINTS; PR00262; ILIHBGF.
PRINTS; PR00263; HBGFFGF.
SEQUENCE 196 AA; 21203 MW; 49B75E39 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              206 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Biochim. Biophys. Acta 1443:305-314(1998)
EMBL; Y16850; CAA76422.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Salmoniformes; Salmonidae; Oncorhynchus.
                                                                                                                                                                                                                                                                                                                                 Blochem. Blophys. Res. Commun. EMBL; J04513; AAA52532.1; EMBL; S47380; AAD13853.1; HSSP: P09038; IBFF. PROSITE; PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                         SEQUENCE OF 81-168 FROM N.A. MEDLINE; 93038590.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 33.4%;
Best Local Similarity 54.5%;
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 183 GOKAILFLPMSAKS 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          196 GOKAILFLPLPVSS 209
                                                                              Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                     PEAM; PF00167; FGF;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE; 99096461.
RESCAN P.Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q9YGD8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JT 3
Q9YGD8
                                                                                                                                                                                                                                                         488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
```

```
8
                                                                                                                                                                                                                                                                                                         79 GIKR-V---R-RL-YCNAGIGFHLQVLPDGRINGVHN-ENQYSLIEISTVERGVVSLYGV 131
                                                                                                                                                                                                                                                                                                                                                                             132 RSELFVAMNSRGRLYGTTVFHDECKFRESMLPNNYNAYESSVY--RGSYIALNKHGRLKR 189
                                                                                                                                                                                                                11 TLQALVFLGVLVGMVVPSPAGARANGTLLDSRGWGTLLSRSRAGIAGEISGVNWESGYLV 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 PKRLYCKNGGFFLRINSDGKVDGAREKSDSYIKLQLQAEERGVVSIKGVCANRYLAMKDD 60
                                                                                                                                                                                       20 TLTAIVLLGFIVGIVSSYPIPSRTNATLLERR-WETLFSRSILGISGEKSDLNWESDYLL 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SUZUKI A.S., TABATA T., SAKAGUCHI K., TAKABATAKE T., TAKESHIMA K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Serial expression of the genes in a mesodermalizing ectoderms
                                                                                           Score 441; DB 13; Length 206;
Pred. No. 8.49e-78;
50; Mismatches 59; Indels 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  25.1%; Score 382; DB 13; Length 101; 53.4%; Pred. No. 2.16e-63;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              early Cynops gastrula.";
Submitted (NOV-1996) to the EMBL/GenBank/DDBJ databases.
EMBL; DB9443; BAA13958.1; -
HSSP; P09038; 2BFH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61 GRIMALKWITDECFFFERLESNNYNTYRSRKYSD--WYVALKR 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASIC FGF (FRAGMENT).

Synops pyrnhogaster (dapanese common newt).

Eukaryots, Metazoa; Chordata; Craniata; Vertebrata;

Batrachia; Caudata; Salamandroidea; Salamandridae; C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-MAY-1997 (TrEMBLrel. 03, Last sequence update) 01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18; Mismatches 28;
HSSP; P09038; 1BFF.
PROSITE; PS00247; HBGF_FGF; 1.
SEQUENCE 206,AA; 23375 MW; 818267C3 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              101 101
101 AA; 11907 MW; 1CD93BB0 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               146 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   101 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PROSITE; PS00247; HBGF_FGF; 1.
PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ULT 5

007659 PRELIMINARY;

007659 01-NOV-1996 (TEMBLE) 01, Cz

01-NOV-1996 (TEMBLE) 01, Le

01-NOV-1999 (TEMBLE) 12, Le

FIBROBLAST GROWTH FACTOR.
                                                                                         29.0%;
ilarity 38.5%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              03,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                55; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         190 GKKATTAMTVTHFLP 204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  190 GPRTHYGOKAILFLP 204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-MAY-1997 (TrEMBLrel.
```

```
71 8
P79150
P79150;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
 셤
                       ò
                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6
                                                                                                                              MEDLINE; 90382254.
MITRANI E., GRUENBAUM Y., SHOHAT H., ZIV T.;
"Fibroblast growth factor during mesoderm induction in the early chick
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.
                                                                                                                                                                                                                                                                                                                                  45 ERVSAMVKLQLQAEERGVVSIKGVSANRFLAMKEDGRLLALKCATEECFFFERLESNNYN 104
                                                                                                                                                                                                                                                                                                                                                          106 DRSDQHIQLQLSAESVGEVYIKSTETGQYLAMDTDGLLYGSQTPNEECLFLERLEENHYN 165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  68 LGIKRL----R-RL-YCNVGIGFHLQVLPDGRIHGMHSES-RYSLLEISPVERGVVCMFG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121 VQSGLFLAMNSKGRLFGSKYFSDECKFKEMLLPNNYNAYESWRYPGM--YIALSKNGRAK 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10 ALLPVVLLGLLSGLARCLPMPSPGNGTL-E-WSWETLYSQSLARLAGGQRTDAHRYGEYL 67
                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Notophthalmus viridescens (Eastern newt) (Triturus viridescens).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Amphibia;
Batrachia; Caudata; Salamandroidea; Salamandridae; Notophthalmus.
                                                      BORGA A.2., ZELLER R., MELJERS C.; EXpression of alternatively spliced bFGF first coding exons and antisense mRNAs during chicken embryogenesis.";
                                                                                                                                                                                                                                                                                                             ?
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             49; Mismatches 65; Indels 13;
                                                                                                                                                                                                                                                                                    Length 146;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 196;
                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WEI Y.;
Putative Newt Fibroblast Growth Factor-4.";
Submitted (OCT-1996) to the EMBL/GenBank/DDBJ databases.
EMBL; U7698; AAC98812.1; --
HSSP; P09038; 1BFF.
                                                                                                                                                                                                                                                                                                                                                                                               105 TYRSRKYSD--WYVALKRTGQYKPGPKTGPGQKAILFLPMSAKS 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-MAY-1999 (TrEMBLrel. 10, Created)
01-MAY-1999 (TrEMBLrel. 10, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
PUTATIVE FIBROBLAST GROWTH FACTOR-4.
                                                                                                                                                                                                                                                                                                            20; Mismatches 32;
                                                                                                                                                                                                                                                                                    Score 346; DB 13;
Pred. No. 9.85e-55;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 336; DB 13;
Pred. No. 2.39e-52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROSTITE: PS00247; HBGF_FGF; 1.
SEQUENCE 196 AA; 22033 MW; 455E08A3 CRC32;
                                                                                                                                                                                                                                                             146 AA; 16182 MW; 44C5274B CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         196 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                           Development 109:387-393(1990).
EMBL; M95706; AAA48616.1; -.
EMBL; X56804; CAA40139.1; -.
HSSP; P09038; 2BFH.
PROSITE; PS00247; HBGF_FGF; 1.
                                                                                          Dev. Biol. 157:110-118(1993)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 22.1%;
Best Local Similarity 35.2%;
Matches 69; Conservative
                                                                                                                                                                                                                                                                                    22.7%;
                                                                                                                  SEQUENCE OF 52-85 FROM N.A.
                                                                                                                                                                                                                                                                                                            50; Conservative
                                                                                                                                                                                                                                    PFAM; PF00167; FGF; 1.
PRINTS; PR00262; ILIHBGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRELIMINARY;
                                                                                                                                                                                                                                                                                               Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A. WEI Y.;
                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q9YH31;
                                                                                                                                                                                                                                                                                                                                                                                                                                             л 6
09хн31
                                                                                                                                                                                                                                                                                                                                                                                                                                         요
                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S B B B B B B B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
```

```
CANATAN H., CHANG W.Y., SUGIMOTO Y., SHIDALFAT F., KULP S.K.,
BRUEGGEMETER R.W., LIN Y.C.;
"Keratinocyte growth factor (KGF/FGF-7) has a paracrine role in canine
prostate: molecular cloning of mRNA encoding canine KGF.";
DNA Cell Biol. 15:247-254 (1996).
EMBL; U80800; AAB38972.1;
EMBL; PS0230; AAB38972.1;
PROSITE: PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      69 LFCRTQ-WYLRIDKRGKVKGTQEMKNSYNIMEIRTVAVGIVAIKGVESEYYLAMNKEGKL 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 GFFLRIHPDGRYDGVREKTDPHIKHNFKPKA-EELCYQGSLSNRYLAMKEDGRLLASKCV 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Canis familiaris (Dog).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
                                                                                                                                                                                                                                                                                                  Mammalia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 115;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 194;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 313; DB 11; Length 11:
Pred. No. 6.64e-47;
22; Mismatches 31; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    28; Mismatches 47; Indels
                                                                                                                                                                                                                                                                                                                                                                                                          RICCIARDELLI C.;
Submitted (JAN.1996) to the EMBL/GenBank/DDBJ databases.
EMBL: L.75594, AAA85394.1;
HSSP; P09038; 2BFH.
PROSITE; PS00247; HBGF_FGF; 1.
PROSITE; PS0017 HBGF_FGF; 1.
NON_TER
                                                                                                                                                                                                 01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
Cavia porcellus (Guinea pig).
Bukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60 IDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLG 98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eutherla; Carnivora; Fissipedia; Canidae; Canis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 301; DB 6;
Pred. No. 4.35e-44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE 115 AA; 13495 MW; 4B12914A CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          194 AA; 22476 MW; 2B71A8ED CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          194 AA
                                                                                                                                        PRT; 115 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-MAY-1997 (TrEMBLrel. 03, Created)
                                                                                                                                                                                     Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                   01,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-MAY-1997 (TrEMBLrel. 03, 01-NOV-1999 (TrEMBLrel. 12, KERATINOCYTE GROWTH FACTOR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     19.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 20.6%;
Best Local Similarity 44.6%;
Matches 45; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          38.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
179 KGNKVSPTMTVTHFLP 194
                                 :| : | 189 RGPRTHYGQKAILFLP 204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFFGF.
                                                                                                                                      PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRELIMINARY;
                                                                                                                                                                                   01-NOV-1996 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A. TISSUE=PROSTATE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               96226403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-MAY-1997
01-NOV-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                              RESULT 7
ID Q60487
AC Q60487;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
```

ä

ä

.. 2

Length 252;

g

g

à

```
80 LYCRQG-YYLQMHPDGALDGTKDDSTNSTLFNLIPVGLRVVAIQGVKTGLYIAMNGEGYL 138
                                                                                                                                                                                                                                                                                                                                                                                                       139 YPSELFTPECKFKESVFENYYVIYSSMLYRQQESGRAWFLGLNKEGQVMKGNRVKKTKPA 198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
MEDLINE; 94069734.
ZHAO X.M., YEOH T.K., HIEBERT M., FRIST W.H., MILLER G.G.;
ZHAO X.M., TOH T.K., HIEBERT M., FRIST W.H., MILLER G.G.;
The expression of acidic fibroblast growth factor (heparin-binding growth factor-1) and cytokine genes in human cardiac allografts and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE; 92202857.

LI Y.L., KHA H., GOLDEN J.A., MIGCHIELSEN A.A.J., GOETZL E.J.,
LI Y.L., KHA H., GOLDEN J.A., MIGCHIELSEN A.A.J., GOETZL E.J.,
TURCK E.J.;
"An acidic fibroblast growth factor protein generated by alternate splicing acts like an antagonist.";
J. Exp. Med. 175:1073-1080(1992).

EMBL; S67292, AAB29058.1;
EMBL; X65779; CAA46662.1;
HSSP, POS230; 2AXM.
NON_TER 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Chordata; Craniata; Vertebrata; Mammalia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 265; DB 4; Leus...
Pred. No. 9.39e-36;
.....rhebes 1; Indels
                                                                                                                                                                                                   26; Mismatches 49; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
ACIDIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa; Chordata; Craniata; Vertebra
Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                    Score 274; DB 11;
Pred. No. 8.07e-38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHTD 58
                                             1.
28364 MW; 1DFD5B4B CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6CCC7DFF CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ransplantation 56:1177-1182(1993).
PROSITE; PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60 AA; 6697 MW;
                                                                                                                                 Match 18.0%;
Local Similarity 37.5%;
nes 48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity 92.1%;
Matches 35; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens (Human)
                        PFAM; PF00167; FGF; SEQUENCE 252 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         199 AHFLPKPL 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ||| |:
200 ILFLPLPV 207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NON_TER
SEQUENCE
                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LT 11
Q16588
Q16588;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cells.
                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             THE SULT OF THE SU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
ID Q1
AC Q1
DT Q1
DT Q1
DE AK
OS HK
      SOR
                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δλ
                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                            01-JAN-1998 (TrEMBLrel. 05, Created)
01-JON-1998 (TrEMBLrel. 06, Last sequence update)
01-JON-1999 (TrEMBLrel. 12, Last annotation update)
FIBROBLAST GROWTH FACTOR 10.
Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Archosauría; Aves;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE; 97330690.
OHOGHI H., NARAGAMA T., YAMAMOTO A., ARAGA A., OHTA T., ISHIMARU Y., OHOGHI H., NARAGAMA T., YAMAMATO Y., YAMASAKI M., ITCH N., NOJI S., TOSHIOKA H., KUWANA T., NOHNO T., YAMASAKI M., ITCH N., NOJI S., "The mesenchymal factor, FGFIO, initiates and maintains the outgrowth of the chick limb bud through interaction with FGF8, an apical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         128 YAKKECNEDCNFKELILENHYNTYASAKWTHSGGEMFVALNQKGVPVRGKKTKKEQKTAH 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 78 QGDVRKRKL-Y-SYNKYFLKIEKNGKVSGTKKENCPFSILEITSVEIGVVAVKSIKSNYY 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        136 LAMNKKGKVYGSKEFNSDCKLKERIEENGYNTYASLNWKHNGRQMFVALNGRGATKRGQK 195
                                                                  MEDLINE; 98267141.
YAMAMOTO S., MIKAMI T., OHBAYASHI N., OHTA M., ITOH N.;
"Structure and expression of a novel isoform of mouse FGF homologous factor (FHF)-4.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Rattus norvegicus (Rat), and Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 296; DB 13; Length 212;
Pred. No. 6.41e-43;
28; Mismatches 52; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              212 AA; 23631 MW; CBAB1883 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   252 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Biochim. Biophys. Acta 1398:38-41(1998).
EMBL; AB008908; BAA31544.1; -.
EMBL; AB008907; BAA31543.1; -.
HSSP; P03968; 1BAR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ectodermal factor.";
Development 124:2235-2244(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-NOV-1998 (TrEMBLrel. 08, 01-NOV-1998 (TrEMBLrel. 08, 01-NOV-1999 (TrEMBLrel. 12,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                h 19.4%;
Similarity 38.7%;
53; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     193 THYGQKAILFLPLPVSS 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        196 TRRKNTSAHFLPMVVMS 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; D86333; BAA24945.1;
HSSP; P03968; 1BAR.
PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRINTS; PR00263; HBGFFGF.
SEQUENCE 212 AA; 23631
                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                              202 FLPLPVS 208
                                                                                                                                                                188 FLPMAIT 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TISSUE-BRAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                              RESULT 9
1D 042407.
DT 04-2407.
DT 01-3AN-1
DE FIBROBLANG
OC GAILUS 9
CC EUKARYOL
CC EUKARYOL
CC RESOURCE
RP SEQUENCE
RP ANDLINE;
RA OHUCHI H;
RA YOSHIOKA
RA YOSHIOKA
RA YOSHIOKA
RA YOSHIOKA
RA YOSHIOKA
RA OHUCHI H;
RA YOSHIOKA
RA PERMI;
RI DEVELOM
RL DEVELOM
RL DEVELOM
RL DEVELOM
REMBL; DE
DR REMBL; DE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            O89096
O89096;
```

Matches

g

g δ á

ò

RESULT ID 08

ó

Gaps

ö

ZHAO X.M., YEOH T.K., HIEBERT M., FRIST W.H., MILLER G.G.; "The expression of acidic fibroblast growth factor (heparin binding growth factor-1) and cytokine genes in human cardiac allografts and T cells.";

SEQUENCE FROM N.A. MEDLINE; 94069734.

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Archosauria; Aves;
Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
MEDLINE: 9906551D.
MEDLINE: 9906551D.
MUNOZ-SANUAN I., SIMANDL B.K., FALLON J.F., NATHANS J.;
MUNOZ-SANUAN I., SIMANDL B.K., FALLON J.F., NATHANS J.;

"Expression of chicken fibroblast growth factor homologous factor
(FHF)-1 and of differentially spliced isoforms of FHF-2 during
(FHF)-1 and of differentially spliced isoforms of FHF-2 during
development and involvement of FHF-2 in chicken limb development.";
Development 126:409-421(1999).

EMBL; AF108754; AAD21575.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mammalia;
Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 70;
                                                                                                                                                                                                                                                                                                                                                                                                                      Score 264; DB 4; Length 59;
Pred. No. 1.59e-35;
1; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A. STRAIN-C3H/HEN; STRAIN-C3H/HEN; TISSUE-LIVER; STAMIN-C7H/HEN; TISSUE-LIVER; STAMIC Y. Y. Y. HACKSHAW K.V.; SUDMITTED (JUL-1997) to the EMBL/GenBank/DDBJ databases. EMBL; AF012926; AAB94020.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-NOV-1999 (TrEMBLrel. 12, Created)
01-NOV-1999 (TrEMBLrel. 12, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
FIBROBLAST GROWTH FACTOR 12 ISOFORM A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       . 06, Last sequence update)
. 12, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 264; DB 11;
Pred. No. 1.59e-35;
1; Mismatches 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Transplantation 56:1177-1182(1993).

EMBL: S67294; AAB29059.1; -.
HSSP: P05230; ZAXM.

FRAM: PF00167; FGF; 1.

NON_TER 59 59

SEQUENCE 59 AA; 6595 MW; 1C932B1D CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQH 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HSSP; P05230; 2AXM.
PFAM. PF00167; FGF; 1.
70
SEQUENCE 70 AA; 7677 MW; 15A1BE5E CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           70 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        243 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FIBROBLAST GROWTH FACTOR-1 (FRAGMENT)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-JUN-1998 (TrEMBLrel. 06, Created)
01-JUN-1998 (TrEMBLrel. 06, Last seq
01-NOV-1999 (TrEMBLrel. 12, Last ann
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 17.3%;
Best Local Similarity 97.2%;
Matches 35; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity 97.2%;
Matches 35; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gallus gallus (Chicken)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LT 13
054837
054837;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LT 14
Q9W6A1
Q9W6A1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
DDT ACCOOC OC SERVING THE SERVING SERV
```

```
ñ
                                                          ë
                                                                                77 LF-SQQEYFLQMHPDGTIDGTKDENSDYTLFNLIPVGLRVVAIQGVKAGLYVAMNAEGYL 135
                                                                                             136 YSSDVFTPECKFKESVFENYYVIYSSTLYRQQESGRAWFLGLNKEGQIMKGNRVKKTKPS 195
                                                                                                                                          61 YSSDVFTPECKFKESVFENYYVYSSTLYRQQESGRAWFLGLNKEGQIMKGNRVKKTKPS 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2 LF-SQQGYF1,QMHPDGTIDGTKDENSDYTLFNLIPVGLRVVAIQGVKASLYVAMNGEGYL 60
                                                           Gaps
                                                          5;
                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                   Length 243;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 127;
                                                          Indels
                                                                                                                                                                                                                                                                                   Last sequence update)
Last annotation update)
                                  Score 257; DB 13; I
Pred. No. 6.28e-34;
31; Mismatches 48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    16.5%; Score 251; DB 4; 1
larity 34.6%; Pred. No. 1.44e-32;
Conservative 30; Mismatches 48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   127 127 127 127 AA; 14478 MW; 10E2842D CRC32;
PROSITE; PS00247; HBGF_FGF; 1.
SEQUENCE 243 AA; 27455 MW; A9E6E8CD CRC32;
                                                                                                                                                                                                                                                127 AA
                                                                                                                                                                                                                                                                                                         FIBROBLAST GROWTH FACTOR 12 (FRAGMENT)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Search completed: Tue Aug 29 16:11:48 2000 Job time : 63 secs.
                                                                                                                                                                                                                                                                       Created)
                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                     01-MAY-1997 (TrEMBLrel. 03, 01-MAY-1997 (TrEMBLrel. 03, 01-NOV-1999 (TrEMBLrel. 12,
                                  Query Match
Best Local Similarity 34.4%;
                                                          44; Conservative
                                                                                                                                                                                                                                                PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
                                                                                                                                                                                                 200 ILFLPLPV 207
                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A
                                                                                                                                                                           196 SHFVPKPI 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121 SHFVPKP 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      200 ILFLPLP 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NON_TER
                                                                                                                                                                                                                                                           099517;
                                                                                                                                                                                                                                    T 15
099517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Loc
Matches
                                                         Matches
                                                                                                                                                                                                                                    ò
                                                                                                                             d
                                                                                                                                                     à
                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               음
```

.

. ( , ,

	·
******	(TM)
*****	, <u>-</u>
******	·
******	
******	
******	
********	
********	<u> </u>
***************************************	

3.1A John F. Collins, Biocomputing Research Unit. tt (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd Release 3.1A John F. Copyright (c) 1993-1

MasPar time 6.90 Seconds 617.879 Million cell updates/sec Tue Aug 29 16:17:48 2000; . ou

protein - protein database search, using Smith-Waterman algorithm

MPsrch\_pp

lar output not generated.

>US-09-121-017B-29 (1-180) from US09121017B.pep 1294 Title:

1 MSRGAGRVQGTLQALVFLGV......PRTHYGQKAILFLPLPVSSD 180 Description: Perfect Score: Sequence:

PAM 150 Gap 11 Scoring table:

188963 segs, 23686106 residues Searched:

summaries Minimum Match 0% Listing first 45 Post-processing:

a-geneseq36 1:geneseqp Database:

Variance 127.797; scale 0.246 Mean 31.434; Statistics: Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Pred. No.	1.80e-82	1.80e-82	1.80e-82	1.80e-82	1.80e-82	1.80e-82	1.80e-82	1.80e-82	1.80e-82	1.80e-82	1.80e-82	1.80e-82	1.80e-82	1.80e-82	1.80e-82	1.80e-82	1.80e-82	1.80e-82	1.80e-82	1.80e-82	1.80e-82	1.80e-82	3.68e-82
Description	Human acidic fibroblas	Human acidic Fibroblas	Human acid fibroblast	Human recombinant aFGF	Human acidic fibroblas	Sequence of human prot	Human acidic fibroblas	Human aFGF encoded by	Human beta-endothelial	Human beta-endothelial	Human endothelial cell	Human beta-endothelial	Human acidic fibroblas	FGF-1.	Sequence encoded by co	Fibroblast growth fact	Fibroblast growth fact	Fibroblast growth fact	Human endothelial cell	Human endothelial cell	Human bECGF encoded by	Human endothelial cell	Human alpha-endothelia
£	R25914	R34497	P90068	R74647	W04806	P70995	R10527	R05789	W92283	W04805	W06816	W75414	P94037	R70812	P70482	R80776	W53022	W75711	W75415	W92291	R05785	W06818	W75413
DB	-	Н	Н	H	-	Н	H	-	Н	H	Н	Н	-	7	-	Н	-	-	Н	Н	-	-	Н
% Query Match Length DB	140	140	140	140	140	140	141	151	154	154	154	154	155	155	155	155	155	155	155	155	165	168	134
% Query Match	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.7
Score	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	931	928
Result	77)	7	m	4	S	ø	7	∞	σ	10	11	12	13	14	15	16	17	18	19	20	21	22	. 23

3.68e-82	3.68e-82	2.48e-81	5.08e-81	7.01e-80	7.01e-80	8.90e-80	8.90e-80	9.66e-79	1.69e-77	1.69e-77	6.03e-76	2.52e-75	8.28e-75	8.28e-75	1.44e-73						
Human alpha-endothelia	Human alpha-endothelia	Fibroblast growth fact	Human endothelial cell	Recombinant human Alal	Human (Gly93) aFGF ana	9 N-terminal residue d	aFGF mutein #2.	Fibroblast growth fact	aFGF mutein #3.	12 N-terminal residue	Human acidic fibroblas	Bovine acidic fibrobla	Bovine recombinant afG	Brain-derived acidic f	Bovine fibroblast grow	Bovine acidic Fibrobla	Human acidic fibroblas	Recombinant human muta	Recombinant bovine Ala	Bovine (Ala47,Gly93) a	Chimeric acid/basic fi
W92282	W04807	W71383	W06817	R25570	W00561	R11327	R25418	R65935	R25419	R11328	R05315	P90069	R74648	R13030	R65934	R34496	R25915	P90074	R25569	W00560	W01747
-	Н	Н	-	Н	Н	Н	Н	Н	Н	Н	Н	Н	Н	Н	Н	-	-1	М	•	Н	Н
134	134	156	135	155	155	132	132	140	129	129	154	140	140	140	140	140	140	154	141	141	136
71.7	71.7	71.1	70.9	70.0	70.0	6.69	6.69	69.3	68.2	68.3	67.1	9.99	9.99	9.99	9.99	66.5	9.99	9.99	66.2	66.2	65.3
928	928	920	917	906	906	905	902	895	883	883	868	862	862	862	862	862	862	862	857	857	845
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	36	40	41	42	43	44	45

## ALIGNMENTS

Synergistic antiviral composition contains BFGF and sulphated
Typolysaccharide for treating viral infections e.g. HSV-1 and -2,
cytomegalovirus, HIV, influenza virus etc.

Disclosure; Page 4; 20pp; English.

This sequence represents acidic fibroblast growth factor (aFGF).

aFGF, or its fragments may be used in a synergistic compsn. with an antivirally acitive sulphated polysaccharide, and one or more excipients. The compsn. may be used to control herpes simplex virus (HSV-1 or -2) herpes varicella/zoster; cytomegalovirus; influenza; human respiratory syncytial virus; Semliki Forest virus; influenza; coloney Sarcome virus. The combination of aFGF with sulphated polysaccharide is found to have a greater antiviral activity than sequence 140 AA; 16-JAN-1993 (first entry)
Human acidic fibroblast growth factor.

Wiral infections; viruses; FGF; herpes simplex virus; HSV-1; HSV-2; herpes varicella; herpes zoster; cytomegalovirus; influenza; human respiratory syncytial virus; Semliki Forest virus; HIV; human immunodeficiency virus; Moloney Sarcoma virus. 30-JAN-1992; 101541. 31-JAN-1991; GB-002145. 09-JAN-1992; GB-000410. (FARM ) FARMITALIA ERBA SRL CARLO. Battistini C, Carminati P, Garofano L, Mazue G, Ungheri D; WPI; 92-260792/32. R25914 standard; peptide; 140 AA. Homo sapiens EP-497341-A 05-AUG-1992 RESULT 

Gaps Length 140; Score 931; DB 1; Length 140 Pred. No. 1.80e-82; 1; Mismatches 2; Indels 71.9%; Local Similarity 94.4%; Nes 135; Conservative Query Match Matches

<del>,</del>

3 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 62 셤 g à

118 KRGPRTHYGOKAILFLPLPVSSD 140 

음

ö

R34497;

õ

RESULT
ID R3
ID R3
ID R4
ID DE HC

```
QYLAMDTDGLLYGSQTPNEECLFLERLEEN-----HYNTYISKKHAEKNWFVGLKKNGSC 117
                                                                       63 QYLAMDTDGLLYGSQTPNEECLFLERLEEN-----HYNTYISKKHAEKNWFVGLKKNGSC 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     38 LLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 97
LLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    W04806;
9-DEC-1996 (first entry)
Human acidic fibroblast growth factor.
Endothelial cell growth factor; ECGF; blood vessel; regeneration;
heparin-Sepharose affinity chromatography; probe; oligonucleotide;
FGF; fibroblast growth factor; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        New recombinant human acidic fibroblast growth factor - used to promote cell growth, to promote wound healing, for vascular grafts and blood vessel repair.

Claim 2; Column 30; 25pp; English.

Cligonuclectides were synthesized on the basis of the amino acid sequence of bovinne acidic fibroblast growth factor (aFGF) and used to produce a synthetic gene (given in Q8823) incorporating codons preferred by E. coll or mammalian cells, unique cloning sites, etc. This synthetic gene was mutagenized to obtain a gene encoding a human recombinant aFGF (R74647) having activity
                                                                                                                                                                                                                                                                                                                    25-SEP-1995 (first entry)
Human recombinant aFGF.
Acidic fibroblast growth factor; aFGF; vulnerary; anglogenesis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 931; DB 1; Length 140
Pred. No. 1.80e-82;
1; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Thomas KA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Linemeyer DL,
                                                                                                                                                                                                                                                                              Æ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          118 KRGPRTHYGQKAILFLPLPVSSD 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 r 5
W04806 standard; Protein; 140 AA.
                                                                                                                                       118 KRGPRTHYGQKAILFLPLPVSSD 140
                                                                                                                                                                 Kelly LJ,
                                                                                                                                                                                                                                                                         R74647 standard; protein; 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              / Match 71.9%;
Local Similarity 94.4%;
nes 135; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           04-JUN-1987, US-054991.
04-MAY-1988, US-190293.
08-FED-1991, US-554397.
25-SEP-1991; US-75472.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (MERI ) MERCK & CO INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gimenez-Gallego G,
WPI; 95-138983/18.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   140 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12-SEP-1985;
                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                        US5401832-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                               28-MAR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Seguence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                               mitogen.
                                                                                                                                                                                                                                                                                                   R74647;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               86
                                             63
                                                                                          86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ολ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ON KWE DID
                                        g
                                                                                          ð
                                                                                                                                    ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QYLAMDTDGLLYGSQTPNEECLFLERLEEN-----HYNTYISKKHAEKNWFVGLKKNGSC 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98 QYLAMDTDGLLYGSQIPNEECLFLERLEENATPAPHYNTYISKKHAEKNWFVGLKKNGSC 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          18 LIDANYKKPKLIYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                        (TAKE) TAKEDA CHEM IND LTD.
WPI, 93-139564/17.
WPI, 93-139564/17.
CF mutein prepn. useful for therapy of burn or thrombosis - by transformation of lymphocyte-contained animal cell by vector contg. DNA encoding FGF mutein Disclosure; Page 3; 23pp; Japanese.
The invention covers muteins of FGF (esp. bFGF) which contain at least one glycosylation site. The muteins can be used to treat bu and thrombosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  activator prodn.
Disclosure; page 4; 36pp; English.
Amino acid sequence of human acidic fibroblast growth
factor (aFGF). The patent claims mutant forms which have
increased biological activity with(out) heparin, and promote
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Thomas Jnr RA, Linemeyer DL;
WPI; 89-167092/23.
Mutant acidic fibroblast growth factor
- used for promoting repair of soft tissue, musculoskeletal
tissue or vascular or nerve tissue and plasminogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 931; DB 1; Length 140;
Pred. No. 1.80e-82;
1; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 931; DB 1; Length 140;
Pred. No. 1.80e-82;
1; Mismatches 2; Indels
                                                                                                                                    06-AUG-1993 (first entry)
Human acidic Fibroblast Growth Factor.
aFGF; mutein; glycoslation site; glycoprotein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1-NOV-1989 (first entry)
Human acid fibroblast growth factor
Human acidic fibroblast growth factor; mutant.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    P90068 standard; protein; 140 AA
                                                                                            AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               118 KRGPRTHYGQKAILFLPLPVSSD 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         158 KRGPRTHYGQKAILFLPLPVSSD 180
                                                                  T 2
R34497 standard; protein; 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       71.9%;
ilarity 94.4%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Pest Local Similarity 94.4%;
Matches 135; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14-OCT-1988; 202306.
22-OCT-1987; EP-244431.
(MERI) Merck and Co.
                                                                                                                                                                                                                                                                         30-MAY-1991; 127435.
31-MAY-1990; JP-143388.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
Matches 135; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               140 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              140 AA;
                                                                                                                                                                                                         Homo sapiens.
J05076356-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens
EP-319052-A.
                                                                                                                                                                                                                                                      30-MAR-1993.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     14 - JUN - 1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cell growth
```

Sequence

63

g

g ð 158

ò

g

ò

1;

5; Gaps

Sequence

සි

```
Isolated, purified, biologically active bovine beta endothelial cell slowth factor - useful to regenerate or treat damaged blood vessels Disclosure; F19 8; 28pp: English.

Bovine beta endothelial cell growth factor (beta-ECGF; W0399) having a mol.wt. of 20 kD can be purified at least 16300 fold from bovine brain using heparin-Sepharose affinity chromatography. ECGF is useful for, among other purposes, diagnostic applications and has potential in the treatment of damaged blood vessels or other Human ECGF (737503) or fragments may be obtained using eligenucleotides (737504 to 737509) whose design is based on the sequence of bovine alpha- and beta-ECGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              63 QYLAMDIDGLLYGSQTPNEECLFLERLEEN-----HYNTYISKKHAEKNWFVGLKKNGSC 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98 QYLAMDTDGLLYGSQTPNEECLFLERLEENATPAPHYNTYISKKHARKNWFVGLKKKNGSC 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence of human proteinaceous factor (PFI) with mitogenic activity. Cell growth promoter; mitogen; vascularisation; wound healing.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mitogenic polypetide isolated from human brain tissue - useful for increasing vascular effect in eg wound healing, or generating endothelial cell linings for vascular prostheses, etc. Claim 3; Page 1; 31pp; English.

The PF of the invention was obtd. from human brain tissue. It has a mol. wt. of 15,200-16,500 (pref. 15,61e-16,056) and has a high affinity for heparin. PFl and fragments are useful for promoting the growth of mesoderm-derived cells or neuroectoderm-derived cells and generating endothelial cell linings for vascular prostheses (all sequence 140 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         38 LLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 931; DB 1; Length 14v,
Pred. No. 1.80e-82;
....matches 2; Indels
                                                                                                                                                      (RHON ) RHONE POULENC RORER PHARM INC.
Burgess W, Maciag T;
WPI: 96-412132/41.
N-PSDB; T37503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  P70995 standard; protein; 140 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             118 KRGPRTHYGQKAILFLPLPVSSD 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   158 KRGPRTHYGQKAILFLPLPVSSD 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          14-02T-1987, 301969.
06-WAR-1986; US-838096.
(HARD ) HARVARD COLLEGE.
LODD RR, Harper JW, Strydom DJ;
WPI, 87-28995/41.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /label= Asp-OH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 71.9%;
Best Local Similarity 94.4%;
Matches 135; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13-JUN-1991 (first entry)
                                                                            18-DEC-1987; US-134499, 29-APR-1991; US-693079.
                                                                                                                 27-NOV-1991; US-799859
03-NOV-1994; US-334884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_difference 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              140 AA:
                  03-SEP-1996.
03-MAR-1986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EP-241136-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ပ္ပင္တ
셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
```

ij

```
ï
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Anti-acid antibody, for cancer diagnosis, etc. - is obtd. by using complex of partial peptide(s) of acid fibroblast growth article as antigen.

Tactor and protein as antigen.

Disclosure; Fig 1: 19pp: Japanese.

The was deduced from a gene used to produce recombinant argr.

The was deduced from the protein, esp. from A-D can be used to antigens to produce anti-argr antibodies. The peptides must comprise 8-10 continuous AAs from A or B (claims 5 and 6 resp.),

7-10 continuous AAs from C (claim 7), or 8-9 continuous AAs from D comparing argr.

7-10 continuous AAs from C (claim 7), or 8-9 continuous AAs from D comparing argr.

7-10 continuous AAs from C (claim 7), or 8-9 continuous AAs from D comparing argr.

7-10 continuous AAs from C (claim 7), or 8-9 continuous AAs from D comparise 8-10 continuous AAS from D comparise 9-10 continuous AAS from D compa
                                                                                                                                                                                                                                                                                     63 QYLAMDTDGLLYGSQTPNEECLFLERLEEN----HYNTYISKKHAEKNWFVGLKKNGSC 117
                                                                                                                                                                                                                                                                                                                                    98 QYLAMDTDGLLYGSQTPNEECLFLERLEENATPAPHYNTYISKKHAEKNWFVGLKKNGSC 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        64 QYLAMDTDGLLYGSQTPNEECLFLERLEEN-----HYNTYISKKHAEKNWFYGLKKNGSC 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               98 QYLAMDTDGLLYGSQTPNEECLFLEENATPAPHYNTYISKKHAEKNWFVGLKKNGSC 157
                                                                                                                       3 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          63
                                                                                                                                                                          97
                                      5; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 141;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 931; DB 1; Length 141
Pred. No. 1.80e-82;
1; Mismatches 2; Indels
                                      Indels
Best Local Similarity 94.4%; Pred. No. 1.80e-82; Matches 135; Conservative 1; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15-APR-1991 (first entry)
Human acidic fibroblast growth factor gene.
aFGF; antibody; antigen; cancer; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      R10527 standard; Protein; 141 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                       118 KRGPRTHYGQKAILFLPLPVSSD 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 119 KRGPRTHYGQKAILFLPLPVSSD 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              04-JUL-1988; JP-166275.
03-JUL-1989; JP-172542.
(TAKE ) TAKEDA CHEMICAL IND KK.
WPI; 91-040150/06.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 71.9%;
Best Local Similarity 94.4%;
Matches 135; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2. .12
/label A
56. .67
/label B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /label= B
104. .114
/label= C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     132. .141
/label- D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        03-JUL-1989; 172542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           141 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N-PSDB; Q10399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           J02306996-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            R10527;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT SELECTION OF SELECTION O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
·
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                       g
G
                                                                                                                                                                                                                                                                                ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
```

Query Match

```
Burgess W, Drohan WN, Jaye M, Maciag T; WPI; 99-069734/06.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                         g
   g
                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                             Gene encoding human acidic fibroblast growth factor -
incorporates useful restriction sites at frequent intervals to
facilitate cassette mutagenesis of specified regions.

Claim 2; Fig 3a; 12pp; English.

The synthetic aFGF gene incorporates useful restriction sites at
frequent intervals to facilitate the cassette mutagenesis of
frequent intervals to facilitate the cassette mutagenesis of
the incorporation of the gene into any expression system

The aFGF mol. acts in a cascade effect to control endothelial cell
activity either co-ordinately through synergistic effects or via
independent routes. The regulation of endothelial cells is essential
for the protection of arteries, veins and capillaries from the effect
of thrombogenesis. Their stimulation and control by these factors is
also thought to be important in the development of tumours and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ï
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20-APR-1999 (first entry)
Human beta-endothellal cell growth factor (ECGF) protein sequence.
Endothelial cell growth factor; ECGF; cleavable; recombinant; repair;
regenerate; blood vessel; endothelial cell; human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       68 QYLAMDTDGLLYGSQTPNEECLFLERLEEN----HYNTYISKKHAEKNWFYGLKKNGSC 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98 QYLAMDTDGLLYGSQTPNEECLFLERLEENATPAPHYNTYISKKHAEKNWFVGLKKNGSC 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5; Gaps
                                                                                                          /note= "sites corresp. to two stop codons of
                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 151;
                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 931; DB 1; Length 151
Pred. No. 1.80e-82;
1; Mismatches 2; Indels
                       22-AUG-1990 (first entry)
Human aFGF encoded by synthetic gene.
Acidic fibroblast growth factor; aFGF; thrombogenesis; atherosclerosis; tumors.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (RHON ) RHONE-POULENC RORER PHARM INC.
                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                T 9
W92283 standard; protein; 154 AA.
                                                                                                                      the DNA sequence"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    123 KRGPRTHYGOKAILFLPLPVSSD 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Z
R05789 standard; Protein; 151
                                                                                                                                                         08-AUG-1988; 018775.
08-AUG-1988; GB-018775.
(BRBI-) Brit Bio-Tech Ltd.
Davies JA, Johnson ID;
WPI: 90-109882/15.
N-PSDB; Q03873.
                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 71.9%;
Best Local Similarity 94.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                135; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-134499.
US-693079.
US-799859.
US-334884.
US-472964.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    840088.
US-743261.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-835594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-840088
                                                                                               misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                    atherosclerosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            03-MAR-1986; t
18-DEC-1987; t
29-APR-1991; t
27-NOV-1991; t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens.
                                                                                                                                              11-APR-1990.
08-AUG-1988;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 04-NOV-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             03-NOV-1994;
                                                                                                                                  GB2223496-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15-DEC-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       07-JUN-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US5849538-
                                                                          Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        W92283;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
```

```
ncodes a
peptide
DNA encoding a cleavable signal peptide and an endothelial cell growth factor - useful for producing recombinant endothelial cell growth factor proteins (1990) and the state of the state 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         isolated, purified, biologically active bovine beta endothelial cell growth factor. - useful to regenerate or treat damaged blood vessels bisclosure; Fig. 8: 28pp: English and the beta endothelial cell growth factor (beta-ECGF; W03999) having a mol.wt. of 20 kD can be purified at least 16300 fold from bovine brain using heparin-Sepharose affinity chromatography. ECGF is useful for, among other purposes, diagnostic applications and has potential in the treatment of damaged blood vessels or other Human ECGF (137503) or fragments may be obtained using oligonucleotides (137504 and 137508 to 137508 to 137509) whose design is based on the sequence of bovine alpha- and beta-ECGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98 QYLAMDTDGLLYGSQTPNEECLFLERLEENATPAPHYNTYISKKHAEKNWFVGLKKNGSC 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              77 QYLAMDTDGLLYGSQTPNEECLFLERLEEN----HYNTYISKKHAEKNWFVGLKKNGSC 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           138 LIDANYKKPKLIYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVXIKSTETG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                29-DEC-1996 (first entry)
Human beta-endothelial cell growth factor.
Endothelial cell growth factor; ECGF; blood vessel; regeneration;
heparin-Sepharose affinity chromatography; probe; oligonucleotide;
FGF; fibroblast growth factor.
Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 931; DB 1; Length 154; Pred. No. 1.80e-82;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 931; DB 1; I
Pred. No. 1.80e-82;
1; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US552528-A.
03-SEP-1996.
03-MAR-1986; 835594.
03-MAR-1986; US-835594.
18-DEC-1987; US-134499.
29-APR-1991; US-693079.
27-NVV-1991; US-799859.
03-NOV-1994; US-799859.
WPI: 96-412132/41.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JT 10
W04805 standard; Protein; 154 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                158 KRGPRTHYGQKAILFLPLPVSSD 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           132 KRGPRTHYGQKAILFLPLPVSSD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Match 71.9%;
Local Similarity 94.4%;
les 135; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity 94.4%;
Matches 135; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     154 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            154 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
```

S

g à 셤 ò D P E E E E

```
Claim 1; Column 16; 23pp; English.

This sequence represents the amino acid sequence of the mature human beta-endothelial cell growth factor (b-EGF). This amino acid sequence is identical to the alpha-EGF but the beta sequence contains an extra 20 N-terminal amino acids. The sequence was isolated from a human brain stem cell cDNA library using a probe designed based on fragments of the bovine ECGF (see W75416-W75418). The ECGF protein can be used in compositions for promoting wound healing. ECGF is also used to grow cells on a prosthetic device.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QYLAMDTDGLLYGSQTPNEECLFLERLEEN-----HYNTYISKKHAEKNWFVGLKKNGSC 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QYLAMDTDGLLYGSQTPNEECLFLERLEBN----HYNTYISKKHAEKNWFVGLKKNGSC 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               18 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Compositions for promoting wound healing - containing endothelial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 931; DB 1; Length 155
Pred. No. 1.80e-82;
1; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Recombinant DNA encoding new fibroblast growth factor analogues - useful eg for accelerating wound healing and to control neovascularisation.
Disclosure; p; English.
See also P94038.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 931; DB 1; 1
Pred. No. 1.80e-82;
1; Mismatches 2;
                                                                                                                                                                                                                               (RHON ) RHONE-POULENC RORER PHARM INC.
Burgess W, Drohan WN, Jaye M, Maciag T;
WPI; 98-594032/50.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     25-JUN-1990 (first entry)
Human acidic fibroblast growth factor.
Acidic fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              06-JUL-1988; 306158.
07-JUL-1987; US-070797.
(BIOT-) Biotechn Res Assoc.
Fiddes JC, Abraham JA, Protter A;
WPI; 89-009785/02.
N-PSDB; N93088.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            158 KRGPRTHYGQKAILFLPLPVSSD 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ź
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           132 KRGPRTHYGQKAILFLPLPVSSD 154
                                                                                                                                                                                                                                                                                                                                                   cell growth factor polypeptides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          T 13
P94037 standard; protein; 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity 94.4%;
Matches 135; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity 94.4%;
Matches 135; Conservative
                                                                                         US-134499
                                                                                                                                           27-NOV-1991; US-799859.
03-NOV-1994; US-334884.
07-JUN-1995; US-472964.
                                                                                                                 US-693079
                                                        US-835594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     154 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens.
EP-298723-A.
                                                                                      18-DEC-1987;
29-APR-1991;
                                                        03-MAR-1986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11-JAN-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                P94037;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  78
     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ä
                                                  77 OYLAMDIDGLLYGSQIPNEECLFLERLEEN----HYNTYISKKHAEKNWFVGLKKNGSC 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98 QYLAMDTDGLLYGSQTPNEECLFLEENLEENATPAPHYNTYISKKHAEKNWFVGLKKNGSC 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Adamaged blood vessels, etc.
Claim 1; Column 16: 22pp: English.
Human recombinant endothelial cell growth factors (ECGF) beta
Human recombinant endothelial cell growth factors (ECGF) beta
(W06816) and alpha (W06817) differ only at their N-terminal ends.
They can be produced in transformed prokaryotic or eukaryotic host
cells using DNA sequences (145983 and 145984), respectively) derived
from the complete human ECGF CDNA (745985). Large quantities of
the ECGFs are produced by culturing the host cells and recovering
the proteins. ECGFs have utility in the growth and amplification
of endothelial cells in culture. They can potentially be used to
treat damaged blood vessels and other endothelial cell-lined
structures, and also have diagnostic applins.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  38 LLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Recombinant human endothelial cell growth factors - for treating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       02-MAR-1999 (first entry)
Human beta-endothelial cell growth factor.
Human; endothelial cell growth factor; ECGF; brain stem; probe; hybridisation; bovine; wound healing; prosthetic device.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             lery Match 71.9%; Score 931; DB 1; Length 154; st Local Similarity 94.4%; Pred. No. 1.80e-82; tches 135; Conservative 1; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                   17-WAR-1997 (first entry)
Human endothelial cell growth factor-beta.
Endothelial cell growth factor-beta; ECGF-beta.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens.
US557190-A.
US557190-A.
US57190-A.
US57190-B.
US57190-A.
US5719
                                                                                                                                                                                                    W06816 standard; Protein; 154 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               W75414 standard; protein; 154 AA
                                                                                                                                                                      132 KRGPRTHYGQKAILFLPLPVSSD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              132 KRGPRTHYGQKAILFLPLPVSSD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           154 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens
US5827826-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          27-0CT-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               W75414;
```

ï

5; Gaps

2; Indels

Length 154;

ï

5; Gaps

Length 155;

158

ò 셤 à 셤 ò 

```
Search completed: Tue Aug 29 16:18:04 2000 Job time : 16 secs.
           11-SEP-1987
                                                                                                                                                                                                                                                                                                                                                                                           g
 g
                                                                                                                                                                                                                                                                                                                                                                       ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                        a
                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  98 QYLAMDIDGLLYGSQIPNEECLFLERLEENAIPAPHYNIYISKKHAEKNWFVGLKKNGSC 157
                                                                                                                           FGF-1.

FGF-1, fibroblast growth factor; cytotoxic conjugate; fusion protein; saporin; cytostatic; tumor; diabetes; rheumatoid arthritis.

Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                              Disclosure; Page 108-109; 128pp; English.

Novel fusion proteins comprise FGF linked to saporin. FGF-1 to -9
may be used, pref. FGF-1 (R70812), FGF-5 (R70813), FGF-7 (R70814) or
FGF-8 (R70815) muteins, in which at least 1 Cys residue is replaced
by conservative Ser substitutions. The fusion proteins are potent
sequence 155 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                   New monogenous preparations of cytotoxic conjugates and DNA -
contain fibroblast growth factors and cytotoxic agents for
treating FGF conditions such as tumours, diabetes and rheumatoid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13-MAY-1991 (first entry)
Sequence encoded by complete cDNA sequence of human endothelial cell growth factor (ECGF).
Endothelial cell regeneration; blood vessel regeneration.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 931; DB 1; Length 155
Pred. No. 1.80e-82;
1; Mismatches 2; Indels
                                                                                                                                                                                                                      Ser
                                                                                                                                                                                             /note= "Cys may be replaced by Ser"
                                                                                                                                                                                                                                               vz-AUG-1993; US-099924.
29-OCT-1993; US-145829.
(PRIZ-) PRIZM PHARM INC.
(WHIT-) WHITTIER INST DIABETES & ENDOCRINOLOGY.
BAIrd AJ, Lappi DA, SOSNOWSKI BA;
WPI; 95-082038/11.
                                                                                                                                                                                                                    /note= "Cys may be replaced by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 16. .21
/label- Acidic FGF
22. .155
/label- Alpha ECGF
                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /label- Beta ECGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          P70482 standard; Protein; 155 AA. P70482;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          133 KRGPRTHYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             133 KRGPRTHYGQKAILFLPLPVSSD 155
                                  T 14
R70812 standard; protein; 155
R70812;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 71.9%;
Best Local Similarity 94.4%;
Matches 135; Conservative
                                                                                                              01-SEP-1995 (first entry)
                                                                                                                                                                                                          misc_difference 132
                                                                                                                                                                                  misc_difference 31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                WO9503831-A.
                                                                                                                                                                                                                                                                                                                                                                      arthritis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    18
                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
 ö
                                             ò
                                                                                         THE KAM
                                                                                                                                                                                                                            ö
```

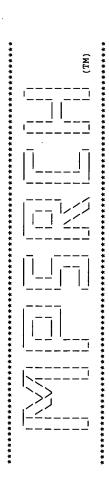
```
78 QYLAMDTDGLLYGSQTPNEECLFLERLEEN----HYNTYISKKHAEKNWFVGLKKNGSC 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                98 QYLAMDTDGLLYGSQTPNEECLFLERLEENATPAPHYNTYISKKHAEKNWFVGLKKNGSC 157
                                                                                                                                                                                                                                                                                                   National and other and continued by recombinant DNA techniques, useful for wound healing Example; Fig 8: 43pp; English.

Example; Fig 8: 43pp; English.

Example; Fig 8: 43pp; English.

To screen the human brain stem cDNA library for clones contg. ECGF inserts, a specific obligance leading was designed. This colligance leading and provided was based upon a partial AA sequence analysis of the amino terminus of ECGF (see F70440 and P70481). Fig 3c sets bovine alpha and beta ECGF (P70834). The two clones that were isolated, ECGF clones 1 and 29, were analysed in further detail. The nucleotide sequence of these clones and the AA sequence deduced from Sequence 155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      18 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 931; DB 1; Length 155, Pred. No. 1.80e-82; 1; Mismatches 2; Indels
                                                                                                                                                                                                                   Jaye M, Burgess W, Maciag T, Drohan W;
WPI; 87-264128/37.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          133 KRGPRTHYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 71.9%;
Best Local Similarity 94.4%;
Matches 135; Conservative
                                         26-MAR-1987; ES-030812.
(MELO-) MELOY LAB INC.
(RORE-) RORER BIOTECHN INC.
(RORE-) RORER.
02-MAR-1987; U00425.
03-MAR-1986; US-835594.
26-MAR-1987; ES-000812.
                                                                                                                                                                                                                                                                                N-PSDB; N70788
                                                                                                                                                                                         BIOTECH INC
```

ï



Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

MPsrch\_pp protein - protein database search, using Smith-Waterman algorithm

Tue Aug 29 16:17:11 2000; MasPar time 11.21 Seconds 757.271 Million cell updates/sec : uo

radular output not generated.

>US-09-121-017B-29 (1-180) from USO9121017B.pep 1294 1 MSRGAGRVQGTLQALVFLGV......PRTHYGQKAILFLPLPVSSD 180 Description: Perfect Score:

Sequence:

PAM 150 Gap 11 Scoring table:

142080 seqs, 47172406 residues Searched:

Post-processing: Minimum Match 0% Listing first 45 summaries

pir64 1:pirl 2:pir2 3:pir3 4:pir4 Database:

Mean 43.414; Variance 75.912; scale 0.572 Statistics:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

Pred. No.	2.21e-185	2.38e-181	_	1.23e-180	4.95e-178	4.87e-169	8.40e-169	1.94e-166	4.56e-79	1.04e-77	4.00e-76	4.00e-76	3.21e-75	4.31e-74	2.05e-73	1.03e-70	3.16e-66	9.00e-44	9.00e-44	6.64e-40	7.76e-39	4.49e-36	2.47e-33
Description	acidic fibroblast aro	l l	acidic fibroblast gro	fiblobrast growth fac	basic fibroblast grow		basic fibroblast grow	fibroblast growth fac	fibroblast growth fac	fibroblast growth fac	fibroblast growth fac			fibroblast growth fac									
Ü	A33665	A60721	D37360	S04147	JH0476	GKBOA	A60130	JW0055	A48834	GKBOB	S00185	A32398	A31674	C37360	S31622	A40117	146711	A48137	S66486	JC5941	JC5940	S14192	JH0708
DB		Н	7	7	7	٦	7	7	~	<del></del> 1	ч	~	N	7	N	Н	~	~	~	7	7	7	7
% Query Match Length	155	155	155	155	152	155	155	155	189	157	146	210	154	154	164	155	137	208	208	207	207	208	9
å Query Match	71.9	70.6	70.4	70.4	9.69	9.99	99	65.8	36.7	36.2	35.7	35.7	35.4	35.0	34.8	33.8	32.3	24.4	24.4	23.0	22.6	21.6	20.6
Score	931	914	911	911	900	862	861	851	475	469	462	462	458	453	450	438	418	316	316	298	293	280	267
Result No.		7	m	7	S	φ	7	∞	σ	10	11	12	13	. 14	. 15	16	17	18	19	20	21	22	23

7.22e-32	2.08e-30	2.08e-30	2.26e-29	2.26e-29	2.26e-29	9.42e-29	9.42e-29	6.29e-28	6.29e-28	1.62e-27	2.60e-27	4.18e-27	1.07e-26	2.75e-26	2.88e-25	7.33e-25	4.74e-24	1.93e-21	2.62e-17	5.87e-16	1.42e-15
FGF-3 - chicken	transforming protein	fibroblast growth fac	keratinocyte growth f	fibroblast growth fac	transforming protein	fibroblast growth fac	transforming protein	embryonic fibroblast	keratinocyte growth f	fibroblast growth fac	fibroblast growth fac	fibroblast growth fac	transforming protein	fibroblast growth fac	embryonic Fibroblast	fibroblast growth fac	HST protein - bovine	fibroblast growth fac	transforming protein	basic fibroblast grow	keratinocyte growth f
150588	A36207	S68144	S49501	S20102	TVHUF5	A36301	S39582	S23595	148610	S26049	JG0184	S04742	TVMST2	150710	S54407	JC4627	JC4268	TVHUHS	TVMSHS	A32484	B46289
7	7	0	7	7	Н	Н	ч	7	7	7	~	Н	-	7	7	7	7	-	Н	7	7
220	264	266	194	208	267	194	237	187	194	194	168	239	245	194	192	256	206	206	202	125	97
20.1	19.6	19.6	19.2	19.2	19.2	18.9	18.9	18.6	18.6	18.5	18.4	18.3	18.2	18.0	17.5	17.5	17.2	16.2	14.5	14.0	13.8
260	253	253	248	248	248	245	245	241	241	239	238	237	235	233	228	226	222	209	188	181	179
24	25	26	27	78	29	30	31	32	33	34	32	36	37	38	39	40	41	42	43	44	45

# ALIGNMENTS

RESULT 1	
ENTRY	A33665 #type complete
TITLE	acidic fibroblast growth factor 1 precursor - human
ALTERNATE_NAMES	<pre>beta-ECGF; endothelial cell growth factor beta; heparin-binding growth factor 1</pre>
ORGANISM	#formal name Homo sapiens #common name man
DATE	10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change
ACCESSIONS	A3365; A32316; S18217; A43804; A24662; JH0707; S35535; S35536; I39413; A23553; A24820; A24243; A24301; A26386; A53639
ECNERERR	A33665
#authors	Mergala, A.; Tischer, E.; Graves, D.; Tumolo, A.; Miller, J.;
	Gospodarowicz, D.; Abraham, O.A.; Shipley, G.D.; Fiddes, J.C.
#journal	Biochem. Biophys. Res. Commun. (1989) 164:1121-1129
#title	Structural analysis of the gene for human acidic fibroblast
#Cross-refere	growth factor. #cross-references MNID:90073637
###	833665
##molecule type DNA	type DNA
##residues	1-155 ##label MER
##Cross-re	ferences GB:M30491
REFERENCE	A32316
#authors	Wang, W.P.; Lehtoma, K.; Varban, M.L.; Krishnan, I.; Chiu,
	I.M. I
#journal	MOI. Cell. Biol. (1989) 9:2387-2395
#CICLE .	Cloning of the gene coding for numan class i neparin-binding growth factor and its expression in fetal fissues
#rross-refere	#prose-references MITD:80343057
#900088100	A32316
##molecule type DNA	type DNA
##res1dues	1-155 ##label WAN
##Cross-re	
REFERENCE	
#authors	Warg, W.P.; Quick, D.; Balcerzak, S.P.; Needleman, S.W.; Chiu, I.M.
#journal	Oncogene (1991) 6:1521-1529
#title	Cloning and sequence analysis of the human acidic fibroblast
	growth tactor gene and its preservation in leukemia batients.
#cross-refere	#cross-references MUID:92019819
*ACCASSTOII **BO!OO!	12012/ +:::: DNA
**************************************	_cype DNA 1-155 ##label WA2
##cross-references	ferenc
REFERENCE	A43804

```
##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #accession
                                                                                                                                                         #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                  #journal
#title
                                                                                                                                     #authors
                                                                                                                                                                                                                                                                                                                                                                                #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              16-155
                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENETICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  硆
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##mcolecule_type mRNA
##residues 1-155 ##label JAY
##cross-references GB:M13361; NID:g181941; PIDN:AAA79245.1; PID:g181942
BHCC JH0707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #authors Payson, R.A.; Canatan, H.; Chotani, M.A.; Wang, W.P.; Harris, S.E.; Myers, R.L.; Chiu, I.M.
#journal Nuclaic Acids Res. (1993) 21:489-495
#title Cloning of two novel forms of human acidic fibroblast growth factor (aFGF) mRNA.
                                                                                                                              ##molecule_type mRNA
##residues 1-155 ##label CHI
##cross-references EMBL:X51943; NID:g32435; PIDN:CAA36206.1; PID:g32436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #authors Yu, Y.L.; Kha, H.; Golden, J.A.; Migchielsen, A.A.J.; Goetzl,
E.J.; Turck, C.W.
#journal J. Exp. Med. (1992) 175:1073-1080
#title An acidic fibroblast growth factor protein generated by
alternate splicing acts like an antagonist.
#cross_references_MUID:92202857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type mRNA
##residues 1-155 ##label YUY
##cross-references GB:X65778; NID:g396163; PIDN:CAA46661.1; PID:g396164
:NCE 835535
#authors Chiu, I.M.; Wang, W.P.; Lehtoma, K.
#journal Oncogene (1990) 5:755-762
#title Alternative splicing generates two forms of mRNA coding for human heparin-binding growth factor 1.
#cross-references MUID:90265618
                                                                                                                                                                                                                  #authors Jaye, M.; Howk, R.; Burgess, W.; Ricca, G.A.; Chiu, I.M.;
Ravera, M.W.; O'Brien, S.J.; Modi, W.S.; Maciag, T.;
Drohan, W.N.
#journal Science (1986) 233:541-545
#title Human endothelial cell growth factor: cloning, nucleotide sequence, and chromosome localization.
#cross-references MUID:86261805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A.
Biochem. Biophys. Res. Commun. (1986) 138:611-617
The complete amino acid sequence of human brain-derived
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Crumley, G.; Dionne, C.A.; Jaye, M. Biochem. Biophys. Res. Commun. (1990) 171:7-13
The gene for human acidic fibroblast growth factor encod two upstream exons alternatively spliced to the first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #authors Harper, J.W.; Strydom, D.J.; Lobb, R.R.
#journal Blochemistry (1986) 25:4097-4103
#crossireferences MUID:86296647
#accession A23553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               16-155 ##label HAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##molecule_type mRNA
##residues 1-58 ##label PA2
##cross-references GB:L01487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##molecule_type mRNA
##residues 1-58 ##label PAY
##cross-references GB:L01485
ccession S35536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #Cross-references MUID:90365758
#accession 139413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                           A24662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S35535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A24820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #accession
                                                                                                                                                                                                                                                                                                                                                                           #accession
                                                                                                              #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
#authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ERENCE
                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
```

```
*authors Gautschi-Sova, P.; Muller, T.; Bohlen, P.
#journal Biochem. Biophys. Res. Commun. (1986) 140:874-880
#title Amino acid sequence of human acidic fibroblast growth factor.
#cross-references MUID:87048871
#accession A26386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             *product fibroblast growth factor 1 *status experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Chavan, A.J.; Haley, B.E.; Volkin, D.B.; Marfia, K.E.; Verticelli, A.M.; Bruner, M.W.; Draper, J.P.; Burke, C.J.; Middaugh, C.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16-30,'X',32-38;73-75,'X',77-97,'X',99-101;128-131,'X',
133-140,'X',142-152 ##label CHA
                                                                                                                                                                           Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A. Blochken. Blophys. Res. Commun. (1986) 135:541-648 Human brain-derived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitogenic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 78 QYLAMDTDGLLYGSQTPNEECLFLERLEEN----HYNTYISKKHAEKNWFVGLKKNGSC 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              98 QYLAMDIDGILIYGSQTPNEECLFLEENATPAPHYNTYISKKHAEKNWFVGLKKNGSC 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gautschi, P.; Frater-Schroder, M.; Bohlen, P. FEBS Lett. (1986) 204:203-207 Partial molecular characterization of endothelial cell mitogens from human brain: acidic and basic fibroblast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #fitle Interaction of nucleotides with acidic fibroblast growth
factor (FGF-1).
#cross-references MUID:94271773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       38 LLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #label MAT\
#binding_site carbohydrate (Asn) (covalent) #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       18 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       alternative splicing; growth factor; heparin binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #length 155 #molecular-weight 17460 #checksum 9243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #superfamily fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 931; DB 1; Le
Pred. No. 2.21e-185;
1; Mismatches 2;
acidic fibroblast growth factor.
#cross-references MUID:86295741
#accession A24820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type protein
##residues 16-30,'X',32-49 ##label GAU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Biochemistry (1994) 33:7193-7202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #gene GDB:FGF1; FGFA
##cross-references GDB:119909; OMIM:131220
#map_position 5q31.3 5q33.2
#introns 57/1; 91/3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##molecule_type protein
##residues 16-155 ##label GA2
##experimental_source brain
SNCE A53639
                                                                                     ##molecule_type protein
##residues 16-155 ##label GIM
                                                                                                                                                                                                                                                                                                                                                                        ##experimental_source brain
NCE A91364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #cross-references MUID:86275260
#accession A24301
                                                                                                                                                                                                                                                                                                                  #cross-references MUID:86186784
#accession A24243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 71.9%;
Best Local Similarity 94.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 135; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                absent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##molecule_type protein
                                                                                                                                                                                                                                                                                              activities
                                                                                                                                                    A90122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A53639
```

ä

```
##molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Local Similarity
Matches 130; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S04147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S04147
                    ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ALTERNATE_NAMES
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CLASSIFICATION
                                                                                                                                                     CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                      #introns
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                      #gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
                                                                                                     GENETICS
                                                    COMMENT
                                                                                                                                                                   SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ENTRY
                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                        å
                                                                                                                                                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                       ద
                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                             acidic fibroblast growth factor - golden hamster heparin-binding growth factor 1 #formal_name Mesocricetus auratus #common_name golden hamster 10.5ep-1999 #sequence_revision 10.5ep-1999 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Dev. Biol. (1990) 138:454-463
Isolation of CDNAs encoding four mouse FGF family members and
characterization of their expression patterns during
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ä
                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hebert, J.M.; Basilico, C.; Goldfarb, M.; Haub, O.; Martin,
                                                                                                                                                                                                                                  Hall, J.A.; Harris, M.A.; Malark, M.; Mansson, P.E.; Zhou, H.; Harris, S.E.
J. Cell. Biochem. (1990) 43:17-26
Characterization of the hamster DDT-1 cell aFGF/HGBF-1 gen and cDNA and its modulation by steroids.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         78 QYLAMDIDGLLYGSQIPNEECLFLERLEEN-----HYNTYTSKKHAEKNWFVGLKKNGSC 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              98 QYLAMDTDGLLYGSQTPNEECLFLERLEENATPAPHYNTYISKRHAEKNWFVGLKKNGSC 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           38 LLDANYKRPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          18 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETG 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             aFGF; FGF-1
#formal_name Mus musculus #common_name house mouse
17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change
16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                  formuly fibroblast growth factor scowth factor factor; heparin binding from 155 #molecular-weight 17403 #checksum 9573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #authors Madiai, F.; Hackshaw, K.V.; Chiu, I.M.
#ajoural Gene (1996) 179:231-236
#title Cloning and characterization of the mouse Fgf-1 gene.
#cross-references MUID:97128312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 914; DB 1; Length 155; Pred. No. 2.38e-181; 2; Mismatches 4; Indels
                                                                                                                                                                                                                                                                                                                                                       not compared with conceptual translation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              acidic fibroblast growth factor - mouse
                                                                                                   #type complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #type complete
133 KRGPRTHYGQKAILFLPLPVSSD 155
                   158 KRGPRTHYGOKAILFLPLPVSSD 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             133 KRGPRTHYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              158 KRGPRTHYGQKAILFLPLPVSSD 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    embryogenesis.
#cross-references MUID:90201563
                                                                                                                                                                                                                                                                                                                     #cross-references MUID:90270291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 70.6%;
Best Local Similarity 92.3%;
Matches 132; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                D37360; JC5231
                                                                                                                                                                                                                                                                                                                                                                   ##molecule_type DNA
##residues 1-1:
CLASSIFICATION #superfan
                                                                                                                                                                                                                                                                                                                                       A60721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    G.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    D37360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JC5231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         E.GULT 3
ETTLE
TITLE
TRENATE_NAMES
ANISM
                                                                                                                                ALTERNATE_NAMES ORGANISM
                                                                                                                                                                                                                                                                                                                                                        ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##status
                                                                                                                                                                                                                                                                                                                                         *accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #accession
                                                                                                                                                                                                                                                                     #journal
#title
                                                                                                                                                                                                                                     #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | journal
                                                                                                                                                                                                   ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                         KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                        SUMMARY
                                                                                 RESULT
                                                                                                                                                                   DATE
 셤
                                 ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
```

```
Goodrich, S.P.; Yan, G.C.; Bahrenburg, K.; Mansson, P.E.
Nucleic Acids Res. (1989) 17:2867
The nucleotide sequence of rat heparin binding growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JH0476  #type fragment acidic fibroblast growth factor - pig (fragment) #formal_name Sus scrofa domestica #common_name domestic pig 31-Mar-1992 #sequence_revision 31-Mar-1992 #text_change
                                                                                                                                                                                                                                                                                                                                                                                 81 AMDTEGLLYGSQTPNEECLFLERLEEN-----HYNTYTSKKHAEKNWFVGLKKNGSCKRG 135
              ##cross-references GB:U36456
This protein is an inducer of neovascularization in angiogenic disease including atherosclerosis, cancer and inflammatory
                                                                                                                                                                                                                                                                                                      80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   80
                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      acidic fibrolast growth factor 1 - rat
heparin-binding growth factor 1
heparin-binding growth factor 1
#formal_name Rattus norvegicus #common_name Norway rat
28.Feb-1990 #sequence_revision 28-Feb-1990 #text_change
16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQYL
                                                                                                                                                                               9341
                                                                                                                                                                                                                                                              υ
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 155;
                                                                                                                                                                                                                         Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                              Indels
                                                                                                                                     57/1; 91/3
#superfamily fibroblast growth factor
#length 155 #molecular-weight 17417
                                                                                                                                                                                                                  Score 911; DB 2; L4
Pred. No. 1.23e-180;
3; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             70.4%; Score 911; DB 2; L. Larity 92.9%; Pred. No. 1.23e-180; Conservative 3; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #type complete
1-155 ##label MAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      161 PRTHYGOKAILFLPLPVSSD 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  136 PRTHYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 i (HBGF-1).
#cross-references MUID:89240051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRTHYGOKAILFLPLPVSSD 155
                                                                                                                                                                                                                     Ouery Match
Best Local Similarity 92.9%;
Matches 130; Conservative
                                                                               autoimmune disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
ORGANISM
DATE
```

```
#cross-references MUID:87016918
                                                                                                                                          ##residues
                                                                                                                                                                                                  #authors
#submission
                                                                                                   #accession
                                                                                                                                                                                                                                         #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 *accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #journal
                    #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Halley, C.; Courtois, Y.; Laurent, M. Nucleic Acids Res. (1988) 16:10913 Nucleotide sequence of bovine acidic fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Renaud, F.; Desset, S.; Bugra, K.; Halley, C.; Philippe, J.M.; Courtois, Y.; Laurent, M. Blochem. Biophys. Res. Commun. (1992) 184:945-952 Heterogeneity of 3' untranslated region of bovine acidic FGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Alterio, J.; Halley, C.; Brou, C.; Soussi, T.; Courtois, Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GKBOA #type complete
acidic fibroblast growth factor precursor - bovine
acidic fibroblast growth factor II; heparin-binding growth
factor I; prostatropin
#formal_name Bos primigenius taurus #common_name cattle
13-Aug-1986 #sequence_revision 03-Feb-1994 #text_change
                                                                                                                                                                                        ##residues 1.152 ##label SCH ##cross-references EMBL:X60317; NID:g1873; PIDN:CAA42869.1; PID:g1874 ##experimental_source heart
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JH0613; S02102; S02661; S22065; B24663; A94281; S03953; A91010; A24477; B25043; C25043; A25043; A24539; A60884; A37892; B37892; A61198; I46024; A34477; A01385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QYLAMDTSGLLYGSQTPSEECLFLERLEEN-----HYNTYTSKKHAEKNWFVGLKKNGSC 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          98 QYLAMDTDGLLYGSQTPNEECLFILEENLEENATPAPHYNTYISKKHAEKNWFVGLKKNGSC 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##residues 1-155 ##label HAL
##cross-references EMBL:X13221; NID:9347; PIDN:CAA31610.1; PID:9348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         18 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               the hydrophobic core residues are packed around the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                            internal symmetry axis
protein belongs to the fibroblast growth factor family
#superfamily fibroblast growth factor
growth factor; heparin binding
                                         #journal Blochem. Blophys. Res. Commun. (1991) 180:853-859 #title Amplification and sequencing of mRNA encoding acidic fibroblast growth factor (aFGF) from porcine heart. #cross-references MulD:92062117
                                                                                                                                                                                                                                                                                                                                                                         #region nuclear location signal\
#binding_site heparin (Lys) #status predicted
#length 152 #checksum 1124
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 152;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 900; DB 2; L
Pred. No. 4.95e-178;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2; Mismatches
                               JH0476
Schmidt, M.; Sharma, H.S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #cross-references MUID:89083506
#accession S02102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #cross-references MUID:92246990
                                                                                                                                                                                                                                                                                                                                                                                                                                                          69.6%; Silarity 92.1%; P
                JH0476; S20072
16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           18-Jun-1999
                                                                                                                                                      cession JH0476
##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity
Matches 129; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JH0613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##residues
                                                                                                                                                                                                                                                                                                 This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE ALTERNATE NAMES
                                                                                                                                                                                                                                                                                                                  CLASSIFICATION
                                                                                                                                                           #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
-DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                           ATURE
22-28
                                                                                                                                                                                                                                                                                                                                      KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                       SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                  133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
ENTRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
```

```
#authors Abraham, J.A.; Mergia, A.; Whang, J.L.; Tumolo, A.; Friedman, J.; Hjerrild, K.A.; Gospodarowicz, D.; Fiddes, J.C.
#journal science (1986) 233:545-548
#title Nucleotide sequence of a bovine clone encoding the anglogenic protein, basic fibroblast growth factor.
#cross-references MUID:86261806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #authors Gimenez-Gallego, G.; Rodkey, J.; Bennett, C.; Rios-Candelore,
M.; Disalvo, J.; Thomas, K.
#journal Science (1985) 230:1385-1388
#title Brain-derived acidic fibroblast growth factor: complete amino acid sequence and homologies.
#cross-references MUID:86070224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Quinkler, W.; Maasberg, M.; Bernotat-Danielowski, S.; Luethe, N.; Sharma, H.S.; Schaper, W.

Bur. J. Blochem. (1989) 181:67-73
Isolation of heparin-binding growth factors from bovine, porcine and canine hearts.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Burgess, W.H.; Mehlman, T.; Marshak, D.R.; Fraser, B.A.; Maciag, T. Proc. Natl. Acad. Sci. U.S.A. (1986) 83:7216-7220 Structural evidence that endothelial cell growth factor beta is the precursor of both endothelial cell growth factor alpha and acidic fibroblast growth factor.
                   #Litle Characterization of a bovine acidic FGF cDNA clone and its expression in brain and retina. #cross-references MUID:89078619
                                                                                                                                                                                                                                                                                                                                                                       ##molecule_type mRNA
##residues 1-18 ##label PHI
##cross-references EMBL:X66446; NID:g411; PIDN:CAA47063.1; PID:g412
RNCE A94290
                                                                                                                                                   ##molecule_type mRNA
##residues 1-155 ##label ALT
##cross-references EMBL:X14032; NID:9322; PIDN:CAA32192.1; PID:9323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #authors Bohlen, P.; Esch, F.; Baird, A.; Gospodarowicz, D.
#journal EMBO J. (1985) 4:1951-1956
#title Acidic fibroblast growth factor (FGF) from bovine brain:
amino-terminal sequence and comparison with basic FMF.
#cross-references MUID:86055750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              prostate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #authors Crabb, J.W.; Armes, L.G.; Carr, S.A.; Johnson, G.D.; Bordoll, R.S.; McKeehan, W.L. Blochemistry (1986) 25:4988-4993
#title Complete primary structure of prostatropin, a perpithelial cell growth factor.
#cross-references MJD:87026586
                                                                                                                                                                                                                                                                             Philippe, J.M. submitted to the EMBL Data Library, May 1992 $22065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##molecule_type protein
##residues 2,'GE',5-155 ##label CRA
FEBS Lett. (1988) 242:41-46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##molecule_type mRNA
##residues 62-102 ##label ABR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##molecule_type protein
##residues 16-155 ##label GIM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type protein
##residues 16-45 ##label QUI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #cross-references MUID:89231704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A94281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     803953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A91010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A94281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                803953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A91010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A24477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A94127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B24663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A24477
                                                                                                                         502661
```

```
ALTERNATE_NAMES ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##status
                                                                                                                                                ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     *authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                             COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <del>a</del>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ă
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #authors Kuo, M.D.; Huang, S.S.; Huang, J.S.
#journal J. Biol. Chem. (1990) 265:16455-16463
#title Acidic fibroblast growth factor receptor purified from bovine liver is a novel protein tyrosine kinase.
#accession A37892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Brain Res. Dev. Brain Res. (1991) 63:13-19
Class 1 heparin binding growth factor promotes the
differentiation but not the survival of ciliary neurones in
                                                                                                                                         16-155 ##label BU2
this form was designated acidic fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    J. Protein Chem. (1987) 6:163-171
Primary structure and mitogenic and angiogenic activities of
brain-derived acidic fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #authors Philippe, J.M.; Renaud, F.; Desset, S.; Laurent, M.; Mallet, J.; Courtois, Y.; Edwards, J.B.

J.; Courtois, Y.; Edwards, J.B.

Blochem. Blophys. Res. Commun. (1992) 188:843-850

Cloning of two different 5' untranslated exons of bovine acidic fibroblast growth factor by the single strand ligation to single-stranded cDNA methodology.
                                                                                                                                                                                                                                                 growth
                                                              growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cession
##notein|-cype protein
##residues 22-30,/X',32-38 ##label KU2
##note this form was designated brain-derived growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a form
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hill, C.E.; Belford, D.A.; Godovac-Zimmermann, J.; Hendry,
I.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##molecule_type protein
##residues 11-26;28-50;53-110,'H',112,'NTY';134-155 ##label HIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##cross-references EMBL:X66446; NID:g411; PIDN:CAA47063.1; PID:g412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sasaki, H.; Hoshi, H.; Hong, Y.M.; Suzuki, T.; Kato, T.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Thomas, K.A.; Gimenez-Gallego, G.; Rios-Candelore, M.;
                                                                                                                                                                                                    ##molecule_type protein
##residues 22-155 ##label BU3
##note this form was designated alpha endothelial cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##molecule_type protein
##residues 62-76,'X',78-86 ##label KUO
##note this sequence is an amino-terminal fragment of
designated as brain-derived growth factor B
                                                            cell
                                                                                                                                                                                                                                                                                                       #authors Strydom, D.J.; Harper, J.W.; Lobb, R.R.
#fournal Biochemistry (1986) 25:945-951
#fitle Amino acid sequence of bovine brain derived class heparin binding growth factor.
#fcross-references MUID:86187766
                                      BUR
designated beta endothelial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                     16-155 ##label STR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            16-155 ##label THO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1-18 ##label PH2
               ##molecule_type protein
##residues 2-155 ##label
##note this form was
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             *cross-references MUID:92164087
                                                                               factor
                                                                                                                                                                                                                                                                      factor
                                                                                                                    ##molecule_type protein
##residues 16-155 #
                                                                                                                                                                                                                                                                                                                                                                                                                             ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DiSalvo, J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##molecule_type mRNA
##residues 1-18
                                                                                                   C25043
                                                                                                                                                                                                                                                                                   A24539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A61198
B25043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A60884
                                                                                                                                                                                A25043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             I46024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   I46024
                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##status
                                                                                                                                                                                  *accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #accession
  #accession
                                                                                                   #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     *accession
                                                                                                                                                                                                                                                                                                                                                                                                              accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #accession
                                                                                                                                                                 ##note
                                                                                                                                                                                                                                                                                                         #authors
#journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bauthors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #journal
                                                                                                                                                                                                                                                                                                                                             #title
                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
```

```
###Olecule_type protein
##resperimental_source heart
##respecimental_source heart
##respecimental_sourc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #authors Risau, W.; Gautschi-Sova, P.; Boehlen, P.
#journal EMBO J. (1988) 7:959-962
#title Endothelial cell growth factors in embryonic e.id adult chick
brain are related to human acidic fibroblast growth factor.
#cross-references MUID:88296438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ĥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##residues
##residues
##cross-references GB:S63263; NID:9234372; PIDN:AAB19629.1; PID:9234373
                                                                                                                                                        bovine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         81 AMDTDGLLYGSQTPNEECLFLERLEEN-----HYNTYISKKHAEKHWFVGLKKNGRSKLG 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               21 GNYKKPKLLYCSNGGYFLRILPDGTVDGTKDRSDQHIQLQLCAESIGEVYIKSTETGQFL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                acidic fibroblast growth factor - chicken endothelial cell growth factor endothelial cell growth factor factor factor afformation endothelial callus gallus #common_name chicken 03-Mar-1993 #sequence_revision 03-Mar-1993 #text_change 16-0ul-1999
#journal J. Biol. Chem. (1989) 264:17606-17612
#title purification of acidic fibroblast growth factor from heart and its localization in the cardiac myocytes.
#accession A34477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Development (1991) 111:1143-1154
Differentiating and mature neurons express the fibroblast growth factor gene during chick ne
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##molecule_type protein ##nolecule_type protein ##residues 22-30,'X',32-44,'X',46-48 ##label RIS #FICATION #superfamily fibroblast growth factor RDS growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pred. No. 4.87e-169;
6; Mismatches 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 862; DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #type complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Schnuerch, H.; Risau, W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Note: remainder of annotations omitted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #cross-references MUID:91347925
#accession A60130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    136 PRTHFGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity 88.6%;
Matches 124; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION
KEYWORDS
```

엄

g ŏ ά

```
teross-references MUID:93246053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A33784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A94290
                   A48834
                                                                                                                                                                                                                                       S23636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ALTERNATE_NAMES
                 #accession
##status
                                                                                                                                                                                                                                                     ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #accession
                                                                                                                                                                                                                                       #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #authors
                                                                                                                                                    #authors
                                                                                                                                                                     #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSIONS
                                                                                                                                                                                   #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                       ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #journal Biochem. Biophys. Res. Commun. (1998) 246:182-191
Primary structure of ovine fibroblast growth factor-1 deduced
by protein and cDNA analysis.
#cross-references MUID:98162939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ξ;
                                                                  ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1-155 ##label GRI
protein is a potent mitogenic factor for NIH 3T3 fibroblasts
the absence of heparin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Borja, A.Z.; Meijers, C.; Zeller, R.
Bory. Biol. (1993) 157:110-118
Expression of alternatively spliced brof first coding exons and antisense mRNAs during chicken embryogenesis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Grieb, T.W.; Ring, M.; Brown, E.; Palmer, C.; Belle, N.;
Donjerkovic, D.; Chang, H.; Yun, J.; Subramanian, R.;
Forozan, F.; Guo, Y.; Vertes, A.; Winkles, J.A.; Burgess,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               81 AMDINGLLYGSQLPGEECLFLERLEEN----HYNTYISKKHADKNWFVGLKKNGNSKLG 135
                                                                                                                                                                                   81 AMDINGLLYGSQTPSEECLFLERLEEN----HYNTYISKKHAEKNWFIGLKKNGSSKLG 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           21 GNYKKPKLLYCSNGGYFLRILPDGRVDGTKDRSDQHIQLQLYAESIGEVYIKSTETGQFL 80
                                                                                                 21 GNYKKPKLLYCSNGGHFLRILPDGKVDGTRDRSDQHIQLQLSAEDVGEVYIKSTASGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A48834 #type complete
Dasic fibroblast growth factor - chicken
#formal_name Gallus gallus #common_name chicken
01-Dec-1993 #sequence_revision 18-Nov-1994 #text_change
                                                                                                                                                                                                                                                                                                                                                                                   #formal_name Ovis sp. #common_name sheep
17-Jun-1998 #sequence_revision 10-Jul-1998 #text_change
07-May-1999
                                                                    Gaps
 #molecular-weight 17322 #checksum 7617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #checksum 8890
                                                                  .,
.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 155;
                                  Length 155
                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 65.8%; Score 851; DB 2; La Best Local Similarity 87.1%; Pred. No. 1.94e-166; Matches 122; Conservative 8; Mismatches 5;
                               Score 861; DB 2; L
Pred. No. 8.40e-169;
6; Mismatches 7;
                                                                                                                                                                                                                                                                                                                        JWU055 #type complete
fiblobrast growth factor-1 - sheep
FGF-1
                                                                                                                                                                                                                                                     161 PRTHYGQKAILFLPLPVSSD 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              136 PRTHFGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               161 PRTHYGOKAILFLPLPVSSD 180
                                                                                                                                                                                                                                  136 PRTHYGQKAILFLPLPVSAD 155
                               66.5%;
larity 87.1%;
Conservative
#length 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##molecule_type mRNA
                                               Local Similarity
es 122; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A48834
                                                                                                                                                                                                                                                                                                                                                                                                                                      JW0055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JW0055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This
                                                                                                                                                                                                                                                                                                                                                                   ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CLASSIFICATION
SUMMARY
                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #authors
#journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
#authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSIONS
                                                  Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                             BULT
 SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
                                                                                                                                                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DATE
                                                                                                                                                                                                                                                                                                                                                                                                      DATE
```

g

ò g à

```
#authors Abraham, J.A.; Mergia, A.; Whang, J.L.; Tumolo, A.; Friedman, J.; Hjerrild, K.A.; Gospodarowicz, D.; Fiddes, J.C.
science (1986) 233:545-548
#title Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fibroblast growth factor.
#cross-references MUD:86261806
#accession A24663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GKBOB #type fragment
basic fibroblast growth factor precursor - bovine (fragment)
brGF; kidney-derived growth factor; prostatropin
#formal_name Bos primigenius taurus #common_name cattle
13-Aug-1986 #sequence_revision 02-Jun-1995 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                     ##CASSIFICATION #Superfamily fibroblast growth factor #checksum 8538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##residues 3-157 ##label ABR
##cross.references GB:M13440; NID:g163049; PIDN:AAA30518.1; PID:g163050
##experimental_source pituitary gland
A90924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ;
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Milner, P.G.; Li, Y.S.; Hoffman, R.M.; Kodner, C.M.; Siegel, N.R.; Deuel, T.F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Fiddes,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #journal Cold Spring Harb. Symp. Quant. Biol. (1986) 51:657-668
#title Human basic fibroblast growth factor: nucleotide sequence, genomic organization, and expression in mammalian cells.#cross references MUID:87217066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           43 LPALPDDGGGGAFPPGHFKDPKRLYCKNGGFFLRINPDGRVDGVREKSDPHIKLQLQAEE 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       103 RGVVSIKGVSANRFLAMKEDGRLLALKCATEECFFFERLESN-----NYNTYRSRKYSD- 156
                                                                                                              sequence extracted from NCBI backbone (NCBIN:131000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4663; A32878; A33784; A61550; A61551; A60310; A61094;
A01386; A60316; A22054; A24819
                                                                                                                                                                                              Mitrani, E.; Gruenbaum, Y.; Shohat, H.; Ziv, T.
Development (1990) 109:387-393
Fibroblast growth factor during mesoderm induction in
early chick embryo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          26 VPSPAGARANGTLLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 475; DB 2; Length 189;
Pred. No. 4.56e-79;
29; Mismatches 43; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       157 -WYVALKRTGQYKPGPKTGPGQKAILFLPMSAKS 189
                       ##molecule_type_nucleic_acid
##residues 1-189 ##label.BOR
##experimental_source_embryo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##molecule_type mRNA
##residues 3-157 ##label AB2
                                                                                                                                         NCBIP:131001)
                                                                                                                                                                                                                                                                                                             #cross-references MUID:90382254
                                                                                                                                                                                                                                                                                                                                                                      preliminary
preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity 48.7%;
Matches 75; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                   ##molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A24663;
```

```
##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    29-33,118-121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                 #accession
                                                                                                                                                                                                                                                                                                                                         #journal
#title
                                                                                                           #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                디
                                                                                     #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        27-157
                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           16-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     23-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ENTRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Proc. Natl. Acad. Sci. U.S.A. (1985) 82:6507-6511
Primary structure of bovine pituitary basic fibroblast growth factor (FGF) and comparison with the amino-terminal sequence of bovine brain acidic FMF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gospodarowicz, D.; Baird, A.; Cheng, J.; Lui, G.M.; Esch, F.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Esch, F.; Baird, A.; Ling, N.; Ueno, N.; Hill, F.; Denoroy, L.; Klepper, R.; Gospodarowicz, D.; Bohlen, P.; Guillemin,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #authors Ueno, N.; Baird, A.; Esch, F.; Shimasaki, S.; Ling, N.; Guillemin, R. Guillemin, R. Bept. (1986) 16:135-145
#title Factor from bovine liver: structural homology with basic fibrobiast growth factor.
#cross-references MUID:87119165
#accession A60310
                                                                                                                                                                                                                           #authors Bertolini, J.; Hearn, M.T.W.
#Journal Mol. Cell. Endocrinol. (1987) 51:187-199
#title Isolation, characterisation and tissue localisation of an N-terminal-truncated variant of fibroblast growth factor.
#cross-references MUID:87247652
#accession A61550
                                                                                                                                                                                                                                                                                                                                                                                                                        Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R. Mol. Cell. Endocrinol. (1987) 49:189-194 Isolation and partial characterization of basic fibroblast growth factor from bovine testis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Doblen, P.
Bohlen, P.
Endocrinology (1986) 118:82-90
Isolation of fibroblast growth factor from bovine adrenal gland: physicochemical and biological characterization.
nces MUID:86081530
                                                                                                                                                                  demonstration of a possible alternative initiator or splice junction
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     this form appears to be identical to the renal form
Biochem. Biophys. Res. Commun. (1989) 165:1096-1103
A novel 17 kD heparin-binding growth factor (HBGF-8) in
bovine uterus: purification and N-terminal amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           the amino end of this form was blocked; the peptide composition matched what was thought to be the signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R. Blochen. Blophys. Res. Commun. (1986) 138:580-588 Isolation of an amino terminal extended form of basic fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##molecule_type protein
##residues 12-25,27-35,'X',37-40 ##label GOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##molecule_type protein
##residues 27-35,'X',37-41 ##label UE3
##experimental_source testes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ###Molecule_type protein
##residues 23-35,'X',37-42 ##label UEN
##experimental_source liver
RNCE A24819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##experimental_source adrenal gland
NCE A01386
                                                                                                                                                                                                                                                                                                                                                    ##molecule_type protein
##residues 16-35 ##label BER
                                                                                                                                                1-14 ##label MIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   growth factor fi
#cross-references MUID:87162856
#accession A61551
                                                                            *cross-references MOID:90121211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #cross-references MUID:86295737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #cross-references MUID:86016731
                                                                                                                      ##molecule_type protein
                                                               sednence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         seguence
                                                                                                                                                                                                                                                                                                                                                                                                  A61551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A01386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A61094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      *cross-references
                                                                                                                                                ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##note
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         *contents
  #journal
#title
                                                                                                                                                                                                                                                   #journal #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #journal #title
                                                                                                                                                                                                                                                                                                                                                                                                                                              #journal
                                                                                                                                                                                                                                                                                                                                                                                                                          authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       *authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #title
                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
```

```
#status predicted #label MATI,

#product basic fibroblast growth factor, pituitary gamma
form #status experimental #label MAT2,

#product basic fibroblast growth factor, pituitary alpha
form #status experimental #label MAT3,

#product basic fibroblast growth factor, pituitary short
form #status predicted #label MAT4,

#product basic fibroblast growth factor, hepatic form
#status experimental #label MAT5,

#product basic fibroblast growth factor, renal form
#status experimental #label MAT6,

#status experimental #label MAT6,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #authors Bohlen, P.; Baird, A.; Esch, F.; Ling, N.; Gospodarowicz, D. #journal Proc. Natl. Acad. Sci. U.S.A. (1984) 81:5364-5368 | #title Isolation and partial molecular characterization of pituitary flaroblast growth factor. | #flaroblast growth f
                                                                                                                                                                                                         Baird, A.; Esch, F.; Boehlen, P.; Ling, N.; Gospodarowicz, D. Regul, Pept. (1985) 12:201-213
Isolation and partial characterization of an endothelial cell growth factor from the bovine kidney: homology with basic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            The acidic and basic fibroblast growth factors are the major.

The acidic and basic fibroblast growth factors are the major endotherlail-cell growth factors. Both are angiogenic agents in vivo and are potent mitogens for a variety of mesoderm-derived cell types in vitro (although bFGF is 30-100 times more potent than aFGF in stimulating the proliferation of normal diploid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein binds heparin more strongly than does aFGF. #superfamily fibroblast growth factor alternative splicing; anglogenesis; growth factor; heparin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #product basic fibroblast growth factor, uterine form
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             71 RGVVSIKGVCANRYLAMKEDGRLLASKCVIDECFFFERLESN-----NYNTYRSRKYS-- 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11 LPALPEDGGSGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEE 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #region heparin binding #status predicted\
#modified_site blocked amino end (Ala) (in mature
pituitary gamma) (probably acetylated) #status
experimental
#length 157 #checksum 1115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 157;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 469; DB 1; Length 157
Pred. No. 1.04e-77;
29; Mismatches 42; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SUU185 #type complete
basic fibroblast growth factor - sheep
prostatropin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##experimental_source kidney
NCE A22054
A22054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SWYVALKRTGQYKLGPKTGPGQKAILFLPMSAKS 157
                                                                                                                                                                                                                                                                                                                                                                                                                   #cross-references MUID:86095426
#accession A60316
                                                                                            ##experimental_source pituitary gland
NCE A60316
                                                   12-157 ##label ESC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 binding; mitogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity 49.4%;
Matches 76; Conservative
##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cession A22054
##molecule_type protein
```

```
##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #accession
                                                                                                                                                                                                                                                                                                                                          #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #accession
                                                                                                                 #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #accession
                                     #journal
#title
                                                                                                                                                                                                                      #authors
                                                                                                                                                                                                                                                            #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #authors
                  #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
REFERENCE
                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                 Simpson, R.J.; Moritz, R.L.; Lloyd, C.J.; Fabri, L.J.; Nice, E.C.; Rubira, M.R.; Burgess, A.W.
F.E.; tubira, M.R.; 224:128-132
Primary structure of ovine pituitary basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A32398 #type complete basic fibroblast growth factor precursor, 22.5K form - human bFGF; fibroblast growth factor 2; prostatic growth factor;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #authors Prats, H.; Kaghad, M.; Prats, A.C.; Klagsbrun, M.; Lelias, J.M.; Liauzun, P.; Chalon, P.; Tauber, J.P.; Amalric, F.; Smith, J.A.; Caput, D. Proc. Natl. Acad. Sci. U.S.A. (1989) 86:1836-1840 #title High molecular mass forms of basic fibroblast growth factor are initiated by alternative CUG codons.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        authors translated the codon GGA for residue 47 as Ala
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #authors Shibata, F.; Baird, A.; Florkiewicz, R.Z.
#journal Growth Factors (1991) 4:277-287
#title Functional characterization of the human basic fibroblast
growth factor gene promoter.
#cross-references MUID:92110035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 GVVSIKGVCANRYLAMKEDGRLLASKCVTDECFFFERLESN-----NYNTYRSRKYS--S 113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A32398; A61537; A26642; B32878; S00297; A54316; B54316;
A33624; A25824; B24243; B24301; S42242; B55784; I52267;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 PALPEDGGSSAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEER 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          prostatropin
basic fibroblast growth factor, 18K form
#formal_name Homo sapiens #common_name man
31-011-1989 #sequence_revision 31-Dec-1993 #text_change
16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                     #sequence_revision 10-Sep-1999 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                  #checksum 3560
formal_name Ovis orientalis aries, Ovis ammon aries
                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 462; DB 1; Length 146;
Pred. No. 4.00e-76;
29; Mismatches 42; Indels 7;
                                                                                                                                                                                                                                                                                                                                                         1-146 ##label SIM
#superfamily fibroblast growth factor
growth factor; heparin binding; mitogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 114 WYVALKRTGOYKLGPKTGPGQKAILFLPMSAKS 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     147 WFVGLKKNGSCKRGPRTHYGQKAILFLPLPVSS 179
            #common_name domestic sheep
10-Sep-1999 #sequence_revision
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1-114 ##label SHI
                                                                                                                                                                                                                #cross-references MUID:88055577
#accession S00185
                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 35.7%;
Best Local Similarity 49.0%;
Matches 75; Conservative
                                                     10-Sep-1999
S00185
                                                                                                                                                                                                                                                     ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##molecule_type mRNA
##residues 1-21
                                                                                                                                                                                                  factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S46253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##molecule_type DNA
##residues 1-1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A61537
                                                                                                                                                                                                                                                                                ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ALTERNATE NAMES
                                                                                                                                                                                                                                                                                                 CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12
                                                                                                                                                                                                                                                                                                                                                           18-22
107-110
                                                                                                                   #authors
                                                                                                                                                        #journal
                                                                          ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ESSIONS
                                                                                                                                                                         #ťitle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CONTAINS
ORGANISM
DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                               REFERENCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                  MMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
                                     DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
```

```
Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Friedman, J.; Gospodarowicz, D.; Fiddes, J.C.
EMBO J. (1986) 5:253-2528
Human basic fibrolast growth factor: nucleotide sequence and genomic organization.
                                                                                                                                                                              ##molecule_type mRNA
##residues 56-210 ##label KUR
##cross-references GB:M27968; NID:g182562; PIDN:AAA52448.1; PID:g182563
##Cross-references GB:M27968; NID:g182562; PIDN:AAA52448.1; PID:g182563
BNCE A90924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Feige, J.J.; Bradley, J.D.; Fryburg, K.; Farris, J.; Cousens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        56-210 ##label ABR the codon GAA for residue 108 as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #journal Jpn. J. Cancer Res. (1991) 82:1263-1270

#title Characterization of high-molecular-mass forms of basic fibroblast growth factor produced by hepatocellular carcinoma cells: possible involvement of basic fibroblast growth factor in hepatocarcinogenesis.

#cross-references MID:92091228

#accession A54316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Story, M.T.; Esch, F.; Shimasaki, S.; Sasse, J.; Jacobs, S.C.; Lawson, R.K.
Blochem. Blochem. Blophys. Res. Commun. (1987) 142:702-709
Amino-terminal sequence of a large form of basic fibroblast growth factor isolated from human benign prostatic hyperplastic tissue.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               L.C.; Barr, P.J.; Baird, A.
J. Cell Biol. (1989) 109:3105-3114
Differential effects of heparin, fibronectin, and laminin of
the phosphorylation of heparin fibroblast growth factor by
protein kinase C and the catalytic subunit of protein
                                                                                                                                                                                                                                                                                                                                                                                                                               genomic organization, and expression in mammalian cells.
                                                                                                                                                                                                                                                                                                                                                                         Cold Spring Harb. Symp. Quant. Biol. (1986) 51:657-668
Human basic fibroblast growth factor: nucleotide, sequence,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           the authors translated the codon GAA for residue 108\ \mathrm{Gly}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type protein
##residues /xx',86-88,'x',90-91,'x',93-95 ##label SH3
##experimental_source C-Li21 hepatocellular carcinoma cell line
##note sequence extracted from NCBI backbone (NCBIP:71595)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Shimoyama, Y.; Gotoh, M.; Ino, Y.; Sakamoto, M.; Kato, Hirohashi, S.
Kurokawa, T.; Sasada, R.; Iwane, M.; Igarashi, K.
FEBS Lett. (1987) 213:189-194
Cloning and expression of cDNA encoding human basic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  not compared with conceptual translation
                                                                                            fibroblast growth factor. #cross-references MUID:87162468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##status preliminary
##molecule_type protein
##residues 57-210 ##label FEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1-155 ##label AB2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #cross-references MUID:90078343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #cross-references MUID:87053817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 kinase A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           _{\rm G1y}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##molecule_type mRNA
##residues 56-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B54316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A33624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A33624
                                                                                                                                                           A26642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B32878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A25824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S00297
```

σ

546253

```
##note
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #journal
                                                                                                                                                                                                                                                                                                                                                                                  171-174
                                                                                                                                                                                                                                                                                                                     65-210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                             82-86
                                                                                        GENETICS
                                                                                                                                                                                                                                                                              1-210
                                                                                                                                                                                                                  KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                      SUMMARY
                                                                                                                                                                                                                                                           FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
ENTRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #journal Blochem. Blophys. Res. Commun. (1992) 187:1227-1231
#title Reverse transcription with nested polymerase chain reaction shows expression of basic fibroblast growth factor transcripts in human granulosa and cumulus cells from in vitro fertilisation patients.
#cross-references WUID:93038590
                                                                                                                           Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A. Blochem. Blophys. Res. Commun. (1986) 135:541-548 Human brain-derived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitogenic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #authors Patry, V.; Bugler, B.; Amalric, F.; Prome, J.C.; Prats, H.
#journal FEBS Lett. (1994) 349:23-28
#title Purification and characterization of the 210-amino acid recombinant basic fibroblast growth factor form (FGF-2).
#cross-references MUID:94320639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pantoliano, M.W.; Horlick, R.A.; Springer, B.A.; Van Dyk, D.E.; Tobery, T.; Wetmore, D.R.; Lear, J.D.; Nahapetian, A.T.; Bradley, J.D.; Sisk, W.P.
Biochemistry (1994) 33:10229-10248
Multivalent ligand-receptor binding interactions in the fibroblast growth factor system produce a cooperative growth factor and heparin mechanism for receptor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Watson, R.; Anthony, F.; Pickett, M.; Lambden, P.; Masson, G.M.; Thomas, E.J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sommer, A.; Brewer, M.T.; Thompson, R.C.; Moscatelli, D.; Presta, M.; Rifkin, D.B.
Brochem. Blophys. Res. Commun. (1987) 144:543-550
A form of human basic fibroblast growth factor with an extended amino terminus.
                                                                                                                                                                                                                                                                                                                                                        Gautschi, P.; Frater-Schroder, M.; Bohlen, P. FEBS Lett. (1986) 204.203.207 Pertial molecular characterization of endothelial cell mitogens from human brain: acidic and basic fibroblast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##status preliminary
##molecule_type mRNA
##residues 54-210 ##label SOM
##cross-references EMBL:M1759; NID:9183086; PIDN:AAA52534.1;
PID:9183087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##molecule_type mRNA
##residues 95-180 a...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##molecule_type protein
##residues 65-88,'X',90-98,'X',100 ##label GAU
                                                                                                                                                                                                                                                ##residues 95-182 ##label RES ##cross-references GB:S47380; NID:g256535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##experimental_source granulosa cells
NCE S46253
oss-reference...
cession A25824
##molecule_type protein
57-77 ##label STO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##molecule_type protein
##residues 54-71 ##label PAN
                                                                                  ##experimental_source prostate
                                                                                                                                                                                                                                                                                                                                                                                                                                           growth factors.
*cross-references MUID:86275260
*accession B24301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #cross-references MUID:87213238
    #cross-references MUID:87156686
                                                                                                                                                                                                                                   #cross-references MUID:86186784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #cross-references MUID:94347757
#accession B55784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                dimerization
                                                                                                                                                                                                                  activities
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                542242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A55784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 152267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S42242
                            #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  *accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #accession
                                                                                                                               #authors
                                                                                                                                                 #journal
                                                                                                                                                                                                                                                                                                                                                                                  journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               # journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #authors
                                                                                                                                                                         #title
                                                                                                                                                                                                                                                                                                                                                                                                    title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #title
                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
```

```
Shimasaki, S.; Emoto, N.; Koba, A.; Mercado, M.; Shibata, F.; Cooksey, K.; Baird, A.; Ling, N. Biochem. Blochys. Res. Commun. (1988) 157:256-263
Complementary DNA cloning and sequencing of rat ov.rian basic fibroblast growth factor and tissue distribution study of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    El-Husseini, A.E.D.; Paterson, J.A.; Myal, Y.; Shiu, R.P.C.
Biochin. Biophys. Acta (1992) 1131:314-316
PCR detection of the rat brain basic flbroblast growth factor
(bFGF) mRNA containing a unique 3' untranslated region.
                                                                                                                                                                                                                                  *superfamily fibroblast growth factor alternative initiators; angiogenesis; growth factor; heparin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #cross-references EMBL: X07285; NID: 956203; PIDN: CAA30265.1; PID: 956204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          64 LPALPEDGGSGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEE 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          124 RGVVSIKGVCANRYLAMKEDGRLLASKCVTDECFFFERLESN----NYNTYRSRKYT-- 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Kurokawa, T.; Seno, M.; Igarashi, K.
Nucleic Acids Res. (1988) 16:5201
Nucleotide sequence of rat basic fibroblast grc th factor
                                                                                                                                                                                                                                                                                                                                           #product basic fibroblast growth factor, 22.5K form
#status predicted #label MA2,
#product basic fibroblast growth factor, 18K form
#status predicted #label MAT,
#freqion heparin binding #status predicted,
#region heparin binding #status predicted
#region heparin waight 22623 #checksum 3610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     26 VPSPAGARANGTLLDANYKRPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAES 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #formal_name Rattus norvegicus #common_name Norway rat
21.May-1990 #sequence_revision 21-May-1990 #text_change
                                                                   Escherichia coll
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A31674 * #type complete
basic fibroblast growth factor precursor - rat
bFGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 462; DB 2; Length 210;
Pred. No. 4.00e-76;
30; Mismatches 42; Indels
                                   39-53;65-88 ##label PAT recombinant gene expressed in
                                                                                                                     #gene GDB:FGF2; FGFB
##cross-references GDB:119910; OMIM:134920
#map_position 4q25-4q27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    177 SWYVALKRTGOYKLGSKTGPGOKAILFLPMSAKS 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A31674; S00876; S24309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##molecule_type mRNA
##residues 1-154 ##label KUR
                                                                                                                                                                                                                                                                                         Sinding; mitogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #cross-references MUID:89061721
#accession A31674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #cross-references MUID:88262516
#accession S00876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 35.7%;
Best Local Similarity 48.7%;
Matches 75; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     16-Jul-1999
##molecule_type_protein
##residues 39-53;65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Lts mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##residues
                                                                                                                                                                                                       #start_codon
CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ALTERNATE_NAMES ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #accession
```

```
Search completed: Tue Aug 29 16:17:30 2000 Job time: 19 secs.
                                                                                                                                                                                                                       #accession
                                                                                                    ACCESSIONS
                                                                                                                      REFERENCE
                                          ORGANISM
      TITLE
                                                                DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               С
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Dev. Biol. (1990) 138:454-463
Isolation of CDNAs encoding four mouse FGF family members and
characterization of their expression patterns during
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##residues 1-154 ##label HEB ##cross-references GB:M30644; NID:g193296; PIDN:AAA37621.1; PID:g309239 ##cross-references GB:M30644; NID:g193296; PIDN:AAA37621.1; PID:g309239 IFICATION #superfamily fibroblast growth factor #length 154 #molecular-weight 17153 #checksum 2906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3
                                                                          ##residues 35-154 ##label ELH
##cross-references EMBL:XG1697; NID:956143; PIDN:CAA43863.1; PID:956144
FICATION #superfamily fibroblast growth factor
Growth factor
                                                                                                                                                                                                                                                                                                                 ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hebert, J.M.; Basilico, C.; Goldfarb, M.; Haub, O.; Martin,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            41 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 100
                                                                                                                                                                                                                                                                                                                                                                                                                                76 VCANRYLAMKEDGRILASKCVTEECFFFERLESN-----NYNTYRSRKYS--SWYVALKR 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                      83 AMKEDGRLLASKCVTEECFFFERLESN----NYNTYRSRKYS--SWYVALKRTGQYKLG 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   23 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYL 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         c37360 #type complete
basic fibroblast growth factor - mouse
#formal_name Mus musculus #common_name house mouse
17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change
                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                             #domain signal sequence #status predicted #label
#product basic fibroblast growth factor #status
predicted #label MAT
#length 154 #molecular-weight 17139 #checksum 3026
                                                                                                                                                                                                                                                                                                                 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              23; Mismatches 36; Indels 7;
                                                                                                                                                                                                                                                                         Score 458; DB 2; Length 154;
Pred. No. 3.21e-75;
26; Mismatches 39; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 2; Length 154;
        ##molecule_type mRNA
##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pred. No. 4.31e-74;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 453;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          129 TGQYKLGSKTGPGQKAILFLPMSAKS 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             154 NGSCKRGPRTHYGQKAILFLPLPVSS 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          embryogenesis.
#cross-references MUID:90201563
#accession C37360
#cross-references MUID:92329546
#accession S24309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               161 PRTHYGORAILFLPLPVSS 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         136 SKTGPGQKAILFLPMSAKS 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 35.0%;
Best Local Similarity 52.5%;
Matches 73; Conservative
                                                                                                                                                                                                                                                                         Query Match 35.4%;
Best Local Similarity 50.7%;
Matches 74; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##molecule_type mRNA
##residues 1-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  G.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A37360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CLASSIFICATION
                                                                                                                    CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSIONS
                                                                                                                                                                                               10-154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                     SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
ENTRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DATE
                                                                                                                                                                                                                                                                                                                                                                                                                          a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             쉽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
```

#type fragment

531622

15

RESULT ENTRY

```
ω
•
                                                                                                                                                                                                Kusewitt, D.F.; Sabourin, C.L.K.; Budge, C.L.; Ley, R.D. submitted to the EMBL Data Library, September 1992 characterization of CINA encoding basic fibroblast growth factor of the marsupial Monodelphis domestica.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                71 LQLQAEERGVVSIKGVCANRYLAMKEDGRLLALKYVTEECFFFERLESN-----NYNTYR 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12 GSITTLPALSGDGG-GGGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGIREKSDPNIK 70
basic fibroblast growth factor - short-tailed opossum (Monodelphis domestica) (fragment) #formal_name Monodelphis domestica 20.Feb-1995 #sequence_revision 20-Feb-1995 #text_change 331622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              19 GVLVGMVVPSPAGARANGTLLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .;
œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 164;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            139 SKKHAEKNWEVGLKKNGSCKRGPRTHYGQKAILFLPLPVSS 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  126 SRKYS--NWYVALKRTGQYKLGSKTGPGQKAILFLPMSAKS 164
                                                                                                                                                                                                                                                                                                                                                                                          ##cross_references_EMBL:315154
CLASSIFICATION #superfamily fibroblast growth factor
SUMMARY #1ength 164 #checksum 5156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 450; DB 2; Pred. No. 2.05e-73;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   28; Mismatches
                                                                                                                                                                                                                                                                                                                                                                        1-164 ##label KUS
                                                                                                                                                                                                                                                                                                          ##molecule_type DNA
##resid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ouery Match
Best Local Similarity 47.8%;
Matches 77; Conservative
                                                                                                                                                                      531622
                                                                                                                                                                                                                                                                                                531622
                                                                                                                                                                                                #authors
#submission
#description
```

*****	(TM)	****
***		***
****	<u> </u>	*****
*****		******
********		********
*******		********
*******		*******
*******	\	******
· 不是我们的国际,我们的国际,我们的国际的,我们的国际的,我们的国际的,我们的国际的,我们的国际的,我们的国际的,我们的国际的,我们的国际的,我们的国际的,我们	<u></u>	<b>化水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水</b>
-		_

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

protein - protein database search, using Smith-Waterman algorithm MPsrch\_pp

MasPar time 7.30 Seconds 764.304 Million cell updates/sec Tue Aug 29 16:14:14 2000; :uo

Jular output not generated.

>US-09-121-0178-29 (1-1404) from US09121017B.pep 1294 Description: Perfect Score: Title:

1 MSRGAGRVQGTLQALVFLGV......PRTHYGQKAILFLPLPVSSD 180 Sednence:

Scoring table:

PAM 150 Gap 11

85661 seqs, 30989116 residues Searched:

Minimum Match 0% Listing first 45 summaries Post-processing:

1:swissprot swiss-prot38 Database:

Variance 68.487; scale 0.646 Mean 44.269; Statistics: Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# STIMMARTES

		ø			SUMMARIES			
Result		Query	;	1				
ç	Score	Match	Length DB	88	ei ei	Description	_	Pred. No.
	931	71.9	155	Н	FGF1_HUMAN	HEPARIN-BINDING GROWTH	WTH	2.70e-209
7	914	70.6	155	Н	FGF1_MESAU	HEPARIN-BINDING GROWTH	WTH	9.62e-205
m	911	70.4	155	Н	FGF1_MOUSE	HEPARIN-BINDING GROWTH	WTH	6.11e-204
4	900	9.69	152	-	FGF1_PIG	HEPARIN-BINDING GROWTH	WIH	5.35e-201
5	862	9.99	155	Н	FGF1_BOVIN	HEPARIN-BINDING GROWTH	WTH	7.58e-191
9	861	66.5	155	Н	FGF1_CHICK	HEPARIN-BINDING GRO	SROWTH	1.40e-190
7	475	36.7	158	-	FGF2_CHICK	HEPARIN-BINDING GRO	GROWTH	2.45e-89
ω	469	36.2	155	Н	FGF2_BOVIN	HEPARIN-BINDING GRO	SROWTH	8.36e-88
6	463	35.8	155		FGF2_SHEEP	HEPARIN-BINDING GRO	SROWTH	2.83e-86
10	462	35.7	155	-	FGF2_HUMAN	HEPARIN-BINDING GRO	GROWTH	5.10e-86
11	458	35.4	154	Н	FGF2_RAT	HEPARIN-BINDING GRO	GROWTH	5.33e-85
12	453	35.0	154	-	FGF2_MOUSE	HEPARIN-BINDING GRO	GROWTH	9.97e-84
13	450	34.8		-	FGF2_MONDO	HEPARIN-BINDING GRO	GROWTH	5.78e-83
14	438	33.8		-	FGF2_XENLA	HEPARIN-BINDING GRO	GROWTH	6.42e-80
15	418	32.3	137	ч	FGF2_RABIT	HEPARIN-BINDING GROWTH	WTH	7.30e-75
16	327	25.3	209	٦	FGF9_XENLA	GLIA-ACTIVATING FAC	FACTOR	3.01e-52
17	316	24.4	208		FGF9_RAT	GLIA-ACTIVATING FAC	FACTOR	1.44e-49
18	316	24.4	208	Н	FGF9_HUMAN	GLIA-ACTIVATING FACTOR	TOR	1.44e-49
19	316	24.4	208	-	FGF9_MOUSE	GLIA-ACTIVATING FACTOR	TOR	1.44e-49
20	298	23.0	207	٦	FGFG_HUMAN	FIBROBLAST GROWTH FA	FACT	3.25e-45
21	293	22.6	207	Н	FGFG_RAT	FIBROBLAST GROWTH F.	FACT	5.17e-44
22	280	21.6	208		FGF6_MOUSE	FIBROBLAST GROWTH F.	FACT	6.64e-41
23	260	20.1	220		FGF3_CHICK	FIBROBLAST GROWTH FA	FACT	3.58e-36

9.1126-35 11.556-35 11.556-34 11.556-34 11.556-34 12.257-34 12.256-34 12.256-34 12.256-34 12.256-34 13.36-32 13.36-32 13.36-32 13.36-32 13.36-30 13.36-30	
FIBROBLAST GROWTH FACT FIBROBLAST GROWTH FACT	
FGFA_HUMAN FGFE_MOUSE FGFE_MOUSE FGFE_RAT FGFE_RAT FGFE_HUMAN	1
208 215 2215 2266 2266 2266 2268 227 228 228 228 228 228 228 228 228 22	
22222222222222222222222222222222222222	
40000000000000000000000000000000000000	

#### ALIGNMENTS

FGF1\_HUMAN STANDARD; PRT; 155 AA.
P05230; P07502;
13-AGC-1987 (Rel. 05, Last sequence update)
13-AGC-1989 (Rel. 38, Last annotation update)
15-JUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) SEQUENCE FROM N.A.
MEDLINE; 86261805.
MEDLINE; 86261805.
Jaye M., Howk R., Burgess W., Ricca G.A., Chiu I.-M., Ravera M.W., O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;
"Human endothelial cell growth factor: cloning, nucleotide sequence, and chromosome localization.";
Science 233:541-545(1986). Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding growth factor and its expression in fetal tissues."; Mol. Cell. Biol. 9:2387-2395(1989). Homo sapiens (Human). Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi; Mammalia, Eutheria, Primates, Catarrhini, Hominidae, Homo. SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 89343957 OR FGFA. FGF1 Homo RESULT 

MEDLINE; 900.4557.
METGIA A., Tischer E., Graves D., Tumolo A., Miller J.,
Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;
"Structural analysis of the gene for human acidic fibroblast growth Chiu I.M., Wang W.P., Lehtoma K.; Alternative splicing generates two forms of mRNA coding for human heparin-binding growth factor 1."; Oncogene 5:755-762(1990). [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. SEQUENCE FROM N.A. MEDLINE; 90073637.

Biochem. Biophys. Res. Commun. 164:1121-1129(1989) factor."

[5] SEQUENCE FROM N.A.

```
A24301;
A24662;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A24820;
A26386;
A33665;
S18217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3D-structure,
PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A24243;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             131220;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1AXM;
2AXM;
1RML;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BINDING
                                                           MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PIR;
PIR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PDB;
                                    [16]
   SEQUENCE OF 16-49.
MEDLINE; 86275260.
Gautschi F., Frater-Schroeder M., Boehlen P.;
Partial molecular characterization of endothelial cell mitogens from human brain: acidic and basic fibroblast growth factors.";
         Wang W.P., Quick D., Balcerzak S.P., Needleman S.W., Chiu I.M.; "Cloning and sequence analysis of the human acidic fibroblast growth factor gene and its preservation in leukemia patients."; Oncogene 6:1521-1529(1991).
                                                                                                                                                                                                                                                                                                                                                              Harper J.W., Strydom D.J., Lobb R.R.;
"Human class 1 heparin-binding growth factor: structure and homology
to bovine acidic brain flbroblast growth factor.";
Blochemistry 25:4097-4103(1986).
                                                                                                                                                                     MEDILINE: 94.069734.
Zhao X.M., Yeoh T.K., Hiebert M., Frist W.H., Miller G.G.;
The expression of acidic fibroblast growth factor (heparin-binding growth factor-1) and cytokine genes in human cardiac allografts and cells.",
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          growth factor.";
                                                                                      Li Y.L., Kha H., Golden J.A., Migchielsen A.A.J., Goetzl E.J.,
Turck E.J.;
An acidic fibroblast growth factor protein generated by alternate
splicing acts like an antagonist.";
J. Exp. Med. 175:1073-1080(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.; "Human brain-derived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitogenic activities."; Blochem. Biophys. Res. Commun. 135:541-548(1986).
                                                                                                                                                                                                                                                                              Crumley G., Dionne C.A., Jaye M.; "The gene for human acidic fibroblast growth factor encodes two upstream exons alternatively spliced to the first coding exon."; Biochem. Biophys. Res. Commun. 171:7-13(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           growth factor.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRÜCTURE BY NMR OF 24-155.
MEDLINE; 94358885.
Pineda-Liucna A., Jimenez M.A., Nieto J.L., Santoro J., Rico M.,
Gimenez-Gallego G.;
                                                                                                                                                                                                                                                                                                                                                                                                                                            Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.;
"The complete amino acid sequence of human brain-derived acidic
fibroblast growth factor.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Blaber M., Disalvo J., Thomas K.A.;
"X-ray crystal structure of human acidic fibroblast
Biochemistry 35:2086-2094(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Biochem. Biophys. Res. Commun. 138:611-617(1986)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE; 87048871.
Gautschi-Sova P., Mueller T., Boehlen P.;
"Amino acid sequence of human acidic fibroblast
Blochem. Biophys. Res. Commun. 140:874-880(1986)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        X-RAY CRYSTALLOGRAPHY (2.0 ANGSTROMS).
                                                                                                                                                                                                                                   Fransplantation 56:1177-1182(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'EBS Lett. 204:203-207(1986).
                                                                                                                                                              SEQUENCE OF 1-154 FROM N.A.
                                                                                                                                                                                                                                                           SEQUENCE OF 1-40 FROM N.A.
                                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 16-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE OF 16-155.
                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE OF 16-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE; 86295741.
                                                                                                                                                                                                                                                                       MEDLINE; 90365758.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE; 96194129.
                                                                                                                                                                                                                                                                                                                                                     86296647.
MEDLINE; 92019819.
                                                                    SEQUENCE FROM N.A. MEDLINE; 92202857.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE OF 16-47
MEDLINE; 86186784
                                                                                                                                                                                                                                                                                                                                                     MEDLINE;
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    action of suramins and suradistas.";
J. Mol. Biol. 281:899-915(1998).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding; Acetylation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -!- SUBUNIT: MONOMER.
-!- MISCELLANDOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
THAN DOES BFGF.
-!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
  human acidic fibroblast
                                                                                                                                                                                                                                                                                                                                                                                                             1,3,
                                                                                                                                                            Pineda-Lucena A., Jimenez M.A., Lozano R.M., Nieto J.L., Santoro J. Rico M., Gimenez-Gallego G.; "Three-dimensional structure of acidic fibroblast growth factor in solution: effects of binding to a heparin functional analog.", J. Mol. Biol. 264:162-178(1996).
                                                                                                                                                                                                                                                                                                                                                                          MEDLINE; 98387896.
Lozano R.M., Jimenez M., Santoro J., Rico M., Gimenez-Gallego G.
"Solution structure of acidic fibroblast growth factor bound to
6-naphthalenetrisulfonate: a minimal model for the anti-tumoral
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HEPARIN-BINDING GROWTH FACTOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACETYLATION.
HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
F586E8BFB09F1580 CRC64;
"1H-NMR assignment and solution structure of hum growth factor activated by inositol hexasulfate. J. Mol. Biol. 242:81-98(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; M30492; AAA52446.1; -.
EMBL; M30490; AAA52446.1; JOINED.
EMBL; M30491; AAA52446.1; JOINED.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; M60515; AAA51672.1; --
EMBL; M60516; AAA51673.1; --
EMBL; M23087; AAA52638.1; --
EMBL; M23086; AAA52638.1; JOINED.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; M13361; AAA79245.1; -. EMBL; X51943; CAA36206.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   155
155
2
2
2
128
116
17460 M
                                                                                                                                                                                                                                                                                                                                               STRUCTURE BY NMR OF 25-155
                                                                                                                     STRUCTURE BY NMR OF 24-155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .; AAB29057.1;
i; CAA46661.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PFAM; PF00167; FGF; 1.
PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       22-APR-98.
22-APR-98.
11-NOV-98.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A24243.
A24301.
A24662.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A33665.
S18217.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2AFG; 15-OCT-95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10
16
2.
24
113.
155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A24820
                                                                                                                                             97107535.
```

```
RESERVED TO THE PROPERTY OF TH
                                            Ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ï
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hall J.A., Haris M.A., Malark M., Mansson P.E., Zhou H., Harris S.E., "Characterization of the hamster DDT-1 cell aFGF/HGBF-I gene and CDNA and its modulation by steroids.";
J. Cell. Biochem. 43:17-26(1990).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIGGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS OR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                          01-FEB-1994 (Rel. 28, Created)
01-FEB-1994 (Rel. 28, Last sequence update)
15-UTL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -i- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY THAN DOES BEGF.
-i- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
HSSP, P05230, 2AXM.
PRAM: PF00167; FGF:
PRINTS; PR00262; ILHGF.
PRINTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGFFGF:
GGOWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      78 QYLAMDIDGLLYGSQIPNEECLFLERLEEN----HYNTYTSKKHAEKNWFVGLKKNGSC 132
                                                                                                                                                                QYLAMDTDGLLYGSQTPNEECLFLERLEEN----HYNTYISKKHAEKNWFVGLKKNGSC 132
                                                                                                                                                                                       98 QYLAMDTDGLLYGSQTPNEECLFLEERLEENATPAPHYNTYISKKHAEKNWFYGLKKNGSC 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           18 LLDANYKRPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 97
                                                                                18 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        18 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETG 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostoml;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
                                            ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BY SIMILARITY.

HEPARIN-BINDING GROWTH FACTOR

HEPARIN (POTENTIAL).

HEPARIN (POTENTIAL).

41E5EC760E412CC5 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        70.6%; Score 914; DB 1; Length 155; 92.3%; Pred. No. 9.62e-205;
  Length 155;
                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                            ;
Score 931; DB 1; L
Pred. No. 2.70e-209;
                                        1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                    155 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mesocricetus auratus (Golden hamster).
                                                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                              133 KRGPRTHYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                       158 KRGPRTHYGQKAILFLPLPVSSD 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KRGPRTHYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             158 KRGPRTHYGQKAILFLPLPVSSD 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15,
155
1 28
116
17403 MW; 4,
71.9%;
94.4%;
                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                      STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GROWTH FACTOR) (AFGF).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -! - SUBUNIT: MONOMER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           113 1
155 AA;
                     Best_Local Similarity
Matches 135; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity
Matches 132; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A. MEDLINE; 90270291.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mesocricetus
                                                                                                                                                                                                                                                                                                                                                 LT 2
FGF1_MESAU
P34004;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
    Ouery Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BINDING
                                                                                                                                                              78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ET ET SO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      윰
                                                                                                                        ò
                                                                                                                                                           g
                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                    ò
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its mose by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hebert J.M., Basilico C., Goldfarb M., Haub O., Martin G.R.; "Isolation of cDNAs encoding four mouse FGF family members and characterization of their expression patterns during embryogenesis."; Dev. Biol. 138:454-463(1990).
                                                                                                      01-JUL-1989 (Rel. 11, Created)
01-JUL-1989 (Rel. 11, Last sequence update)
15-JUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "Characterization of the 1B promoter of fibroblast growth factor 1 and its expression in the adult and developing mouse frain.";
J. Biol. Chem. 271:30263-30271(1996).
-!-FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIGGENIC AGENT IN VIVO AND ARE POTERY MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
-!-SUBUNIT: MONOMER.
-!-SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                       FGF1 OR FGF-1 OR FGFA.

Was musculus (Mouse), and Rattus norvegicus (Rat).

Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE: 89240051.
Goodrich S., Yan G.C., Bahrenburg K., Mansson P.E.,
"The nucleotide sequence of rat heparin binding growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alam K.Y., Frostholm A., Hackshaw K.V., Evans J.E., Rotter A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE; 97128312.
Madial F., Hackshaw K.V., Chiu I.M.;
"Cloning and characterization of the mouse Fgf-1 gene.";
Gene 179:231-236(1996).
                                     155 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Nucleic Acids Res. 17:2867-2867(1989)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL; M30641; AAA37618.1; --
EMBL; U36459; AAC52969.1; --
EMBL; U36457; AAC52969.1; JOINED.
EMBL; U36458; AAC52969.1; JOINED.
EMBL; U67610; AAC52907.1; --
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
SPECIES-MOUSE; STRAIN-BALB/C;
MEDLINE; 97094746.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; X14232; CAA32448.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MGD; MGI:95515; FGF1.
PFAM; PF00167; FGF; 1.
PRINTS; PR00262; IL1HBGF.
                                                                                                                                                                                                                                                         (AFGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S04147; S04147
D37360; D37360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HSSP; P05230; 2AXM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SPECIES-MOUSE;
MEDLINE; 90201563
                                                                                                                                                                                                                                                             GROWTH FACTOR)
FGF1_MOUSE
P10935;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SPECIES-RAT
```

ä

```
FGF1_BOVIN
P03968;
                                                                                                                                                                                                                                                                                                                     CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                         CHAIN
CHAIN
BINDING
BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
      SFFFFFFFFF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAC DOTT TO DO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 between the Swiss Institute of Bioinformatics and the EMBL outstation. the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This SWISS-PROT entry is copyright. It is produced through a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EUT. J. BLOCCHEM, 181:67-73(1989).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-FEB-1996 (Rel. 33, Last sequence update)
15-JUL-1999 (Rel. 38, Last sequence update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST GROWTH FACTOR) (ALPHA-ENDOTHELIAL CELL GROWTH FACTOR)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE; 89231704.
Quinkler W., Massberg M., Bernotat-Danielowski S., Luethe N.,
Sharma H.S., Schaper W.;
Sharma H.S., Schaper W.;
Isolation of heparin-binding growth factors from bovine, porcine and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          41 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AMDIEGLLYGSQIPNEECLFLERLEEN----HYNTYTSKKHAEKNWFVGLKKNGSCKRG 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                          21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQYL 80
                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sus scrofa (Pig).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE; 92062117.
Schmidt M., Sharma H.S., Schott R.J., Schaper W., Maplification and sequencing of mRNA encoding acidic fibroblast growth factor (aFGF) from porcine heart.";
Hiochem. Blophys. Res. Commun. 180:853-859(1991).
                                                                                                                           HEPARIN-BINDING GROWTH FACTOR 1.
                                                                                                                                                                                                                                                                                        Length 155;
                             PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
PROPEP
                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                         HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
8880E4FF0FBA161 CRC64;
                                                                                                                                                                                                                                                                                 Score 911; DB 1; Le
Pred. No. 6.11e-204;
3; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     152 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                      116 H.
17418 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  161 PRTHYGOKAILFLPLPVSSD 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIHYGOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                 70.4%; silarity 92.9%; E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; X60317; CAA42869.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                                        155
28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SUBUNIT: MONOMER
                                                                                                                        16 1
24
113 1
155 AA;
                                                                                                                                                                                                                                                                                                                  Local Similarity
nes 130; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  THAN DOES BFGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE OF 22-41
MEDLINE; 89231704
PRINTS; PR00263;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GF1 OR FGF-1
                                                                                                                                                                                      BINDING
SEQUENCE
                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                         BINDING
                                                                                                                        CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               136
                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q0/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A REPARENT OF THE REPARENT OF 
ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
```

```
MEDLINE; 89083506.
Halley C., Courtois Y., Laurent M.;
"Nucleotide sequence of bovine acidic fibroblast growth factor cDNA.";
Nucleic Acids Res. 16:1091-10913(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         78 QYLAMDISGLLYGSQIPSEECLFLERLEEN----HYNTYTSKKHAEKNWFVGLKKNGSC 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        23-0CT-1986 (Rel. 02, Created)
01-MAR-1989 (Rel. 10, Last sequence update)
15-0UL-1999 (Rel. 38, Last annotation update)
HEPRIN-BINDING GROWTH FACTOR 1 PRECURSOR (HEGF-1) (ACIDIC FIBROBLAST
GROWTH FACTOR) (AFGF) (PROSTATROPIN) (ENDOTHELIAL CELL GROWTH FACTOR
BETA AND ALPHA CHAINS) (ACIDIC EYE-DERIVED GROWTH FACTOR II) (EDGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               is the
                                                                                                                                                                                                                                                                                                                                                                                                                                         5; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Laurent M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bos taurus (Bovine).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoldea;
                                                                                                                                                                                 ENDOTHELIAL CELL GROWTH FACTOR ALPHA. HEPARIN (POTENTIAL). HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE; 87016918.

Burgess W.H., Mehlman T., Marshak D.R., Fraser B.A., Maciag T.;

"Structural evidence that endothelial cell growth factor beta is t
precursor of both endothelial cell growth factor alpha and acidic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG
                                                                                                                                                            HEPARIN-BINDING GROWTH FACTOR
                                                                                                                                                                                                                                                                                                                                                                                     Length 152;
PIR; S03954; SCT.

PLAN; PF0216; ZAZ.

PRAN; PF00167; EGF; 1.

PROSITE; PS00247; HBGF_FGF; 1.

PROSITE; PS00247; Mitogen; Vascularization; Heparin-binding.

Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                  >152 HEPARIN-BINDING GROWTH FACTO
>152 ENDOTHELIAL CELL GROWTH FACT
28 HEPARIN (POTENTIAL).
116 HEPARIN (POTENTIAL).
31 C -> S (IN REF. 2).
39 R -> Y (IN REF. 2).
152
AA: 17103 MW; AE85380A92F9ABF4 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                      4; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alterio J., Halley C., Brou C., Soussi T., Courtois Y., "Characterization of a bovine acidic FGF cDNA clone and expression in brain and retina.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            fibroblast growth factor.";
Proc. Natl. Acad. Sci. U.S.A. 83:7216-7220(1986).
                                                                                                                                                                                                                                                                                                                                                                                                          Pred. No. 5.35e-201;
                                                                                                                                                                                                                                                                                                                                                                                       DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                      2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              155 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OR FGF-1 OR FGFA OR HBGF-1 OR AFGF
                                                                                                                                                                                                                                                                                                                                                                                     Score 900;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            133 KRGPRTHYGOKAILFLPLPV 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      158 KRGPRTHYGQKAILFLPLPV 177
                                                                                                                                                                                                                                                                                                                                                                                       69.68;
                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity 92.1%;
Matches 129; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEBS Lett. 242:41-46(1988)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bovidae; Bovinae; Bos.
                                                                                                                                                          16 >1
22 >1
24 24
113 1
31 31
152 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      [1]
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE; 89078619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE OF 2-155,
MEDLINE; 87026586,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TISSUE-RETINA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TISSUE-RETINA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE OF
```

```
PF00167;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 6
ID FGF1_CHICK
AC P19596;
DT 01-FEB-1991 (
DT 01-FEB-1996 (
                       B25043;
C25043;
                                                                                                                                                                                                                                  1D-structure
                                                        A24477;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                  MOD_RES
BINDING
BINDING
                                                                                                                                                                                                                                             PROPEP
CHAIN
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                     STRAND
TURN
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                            HELIX
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAND
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HELIX
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TURN
STRAND
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  136
     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Science 251:90-93(1991).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "Isolation of heparin-binding growth factors from bovine, porcine and canine hearts.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
THAN DOES BFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -! - SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                        Brain-derived acidic fibroblast growth factor: complete amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE; 91095983.
Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
Hsu B.T., Rees D.C.;
"Three-dimensional structures of acidic and basic fibroblast growth
Crabb J.W., Armes L.G., Carr S.A., Johnson C.M., Roberts G.D., Bordoli R.S., McKeehan W.L.; Complete primary structure of prostatropin, a prostate epithelial cell growth factor."; Blochemistry 25:4988-4993(1986).
                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE OF 16-56 FROM N.A. MEDLINE, 86261806.
MEDLINE, 86261806.
Abraham J.A., Mergia A., Whang J.L., Tumolo A., Friedman J., Hjerrild K.A., Gospodarowicz D., Fiddes J.C.;
"Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fibroblast growth factor.";
Science 233:545-548(1986).
                                                                                                                                       Gimenez-Gallego G., Rodkey J., Bennett C., Rios-Candelore M.,
Disalvo J., Thomas R.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Quinkler W., Maasberg M., Bernotat-Danielowski S., Luethe N.,
Sharma H.S., Schaper W.;
                                                                                                                                                                                                                                                             MEDLINE; 86055750.

Boehlen P., Esch F., Baird A., Gospodarowicz D.;
Aacidic fibroblast growth factor (FGF) from bovine brain:
amino-terminal sequence and comparison with basic FGF.";
EMBO J. 4:1951-1956(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE OF 1-18 FROM N.A.
Philippe J.M., Renaud F., Desset S., Laurent M.;
Submitted (JUL-1992) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
                                                                                                                                                                                                                                           SEQUENCE OF 16-44, AND COMPOSITION. MEDLINE; 86055750.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eur. J. Biochem. 181:67-73(1989)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; M13439; AAA30516.1; -.
                                                                                                                                                                                                            Science 230:1385-1388(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       M97661; AAA30564.1;
                                                                                                                                                                                              sequence and homologies.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  M35608; AAA30517.
X66446; CAA47063.1
M97660; AAA30563.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SUBUNIT: MONOMER
                                                                                                                         86070224.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL; M97660; AAA3(
EMBL; M97661; AAA3(
PIR; A01385; GKBOA
                                                                                                     SEQUENCE OF 16-155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE OF 16-45.
MEDLINE; 89231704.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                factors.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MBL;
```

```
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding; Acetylation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 81 AMDTDGLLYGSQTPNEECLFLERLEEN-----HYNTYISKKHAEKHWFVGLKKN;RSKLG 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21 GNYKKPKLLYCSNGGYFLRILPDGTVDGTKDRSDQHIQLQLCAESIGEVYIKSTFTGQFL 80
                                                                                                                                                                                                             ENDOTHELIAL CELL GROWTH FACTOR BETA. HEPARIN-BINDING GROWTH FACTOR 1. ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         17493 MW; F636641F189F9BFD CRC64;
                                                                                                                                                                                                                                                                                          HEPARIN (POTENTIAL)
HEPARIN (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 862; DB 1; L
Pred. No. 7.58e-191;
6; Mismatches 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         155 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (Rel. 17, Created)
(Rel. 33, Last sequence update)
                                                                                                                                                                                                                                                                            ACETYLATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRTHFGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          161 PRTHYGQKAILFLPLPVSSD 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              66.6%; s
llarity 88.6%; E
Conservative
                                                                                             PRINTS; PR00262; IL1HBGF
PRINTS; PR00263; HBGFFGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STANDARD;
                                    1BAR; 31-OCT-93
1AFC; 31-OCT-93
                                                                               FGF;
B24663; B24663
S02102; S02102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         147 ]
155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
hes 124; Conser
```

161 PRTHYGQKAILFLPLPVSSD

ò

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license greement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                       Risau W., Cautschi-Sova P., Boehlen P.;
Risau W., Cautschi-Sova P., Boehlen P.;
"Endothelial cell growth factors in embryonic and adult chick brain are related to human acidic fibroblast growth factor.";
EMBO J. 7:559-962(1988).
-!- FUNCTION: THE HEPRIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
15-JUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST GROWTH FACTOR) (ALPHA-ENDOTHELIAL CELL GROWTH FACTOR).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SUBUNIT: MONOMER.
MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AMDINGLLYGSQLPGEECLFLERLEEN----HYNTYISKKHADKNWFVGLKKNGNSKLG 135
                                                                 Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              21 GNYKKPKLLYCSNGGHFLRILPDGKVDGTRDRSDQHIQLQLSAEDVGEVYIKSTASGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ENDOTHELIAL CELL GROWTH FACTOR ALPHA. HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
8EDB70545E2B4365 CRC64;
                                                                                                                                                                                           Schnurch H., Risau W.; "Differentiating and mature neurons express the acidic fibroblast growth factor gene during chick neural development."; Development 111:1143-1154(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HEPARIN-BINDING GROWTH FACTOR 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; S63263; AAB19629.1; -.
EMBL; U31863; AAA80310.1; -.
EMBL; S03261, AAA13942.1; -.
EMBL; S02539; S02639.
HSSP; P05230; 2AXM.
HSSP; P05230; 2AXM.
PROULG7; FGF; 1.
PRINTS; PRO0262; ILIHBGF.
PRINTS; PRO0263; HBGFFGF.
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7; Indels.
                                                                                                                                                                                                                                                                                                                         to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 861; DB 1; Le
Pred. No. 1.40e-190;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    116 H
17322 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRTHYGQKAILFLPLPVSAD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         66.5%;
87.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
Martin G.R., Han J.K.;
Submitted (JUL-1995) to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             THAN DOES BFGF.
                                                                                                                                                        SEQUENCE FROM N.A. MEDLINE; 91347925.
                                                                                                                                                                                                                                                                                                                                                           SEQUENCE OF 22-48
MEDLINE; 88296438
                                                    OR FGF-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              122;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BINDING
                                                                                                                           Gallus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       10.
                                                                                                                                                                                                                                                                                                                                                                            DR
DR
ET
FT
SO
SO
SO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       원
ò
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                             AGENTS
IN
                                                                                                                                                                                                                                                                                                                                                                                                               -!- SUBUNIT: MONOMER.
-!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     72 RGVVSIKGVSANRFLAMKEDGRLLALKCATEECFFFERLESN-----NYNTYRSRKYSD- 125
                                                                                                                                                                   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
                                                 01-FEB-1996 (Rel. 33, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12 LPALPDDGGGGAFPPGHFKDPKRLYCKNGGFFLRINPDGRVDGVREKSDPHIKLQLQAEE 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       26 VPSPAGARANGTLIDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE; 93246053.

BOTJA A.Z., Zeller R., Meijers C.;
"Expression of alternatively spliced bFGF first coding exons and antisense mRNAs during chicken embryogenesis.";
Dev. Biol. 157:110-118(1993).
                                                                                                                                                                                                                                                                                                                       DEV. BIO1. 157:110-118(1993).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HEPARIN-BINDING GROWTH FACTOR 2. HEPARIN (POTEWILAL).
HEPARIN (POTEWILAL).
7B69B684C17F1816 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 158;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; M95707; AAA48617.1; -.
HSSP; P09038; 1BFF.
PRAM; PF00167; FR00262; IL1HBGF.
PRINTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
PROPEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  43; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pred. No. 2.45e-89;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  29; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ä.
                   158 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       126 -WYVALKRIGQYKPGPKIGPGQKAILFLPMSAKS 158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1:||:||:|| | ||:|| ||||||||::|
146 NWFVGLKKNGSCKRGPRTHYGQKAILFLPLPVSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 475;
                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              17374 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              36.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity 48.7%;
tes 75; Conservative
                   STANDARD;
                                                                                                                                                     Gallus gallus (Chicken).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            158
34
122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              158 AA;
                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                     OR FGF-2
                FGF2_CHICK
P48800;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           T 8
FGF2_BOVIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BINDING
                                                                                                                                                                                                           Gallus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best
RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
```

ς,

```
FUNCTION: THE HEPAKIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARLETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
             23-OCT-1986 (Rel. 02, Created)
23-OCT-1986 (Rel. 02, Last sequence update)
01-FEB-1996 (Rel. 02, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR 2 PROTEINS KIDNEY-DERIVED GROWTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE; 86016731.
ESCH F., Baird A., Ling N., Ueno N., Hill F., Denoroy L., Klepper R., Gospodarowicz D., Boehlen P., Guillemin R.; Primary structure of bovine pituitary basic fibroblast growth factor (FGF) and comparison with the amino-terminal sequence of bovine brain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Baird A., Esch F., Boehlen P., Ling N., Gospodarowicz D.; "Isolation and partial characterization of an endothelial cell growth factor from the bovine kidney: homology with basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                           Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.; "Human basic fibroblast growth factor: nucledtide sequence, genomic organization, and expression in mammalian cells.".
Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
MEDLINE; 91095983.
Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
Hau B.T., Rees D.C.;
"Three-dimensional structures of acidic and basic fibroblast growth
                                                                                                                                                 Bos taurus (Bovine).
Eukaryota Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
Bovidae; Bovinae; Bos
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE OF 1-9.
MEDLINE; 86295737.
Ueno N., Baird A., Esch F., Ling N., Guillemin R.;
"Isolation of an amino terminal extended form of basic fibroblast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE; 87119165.
Ueno N., Baird A., Esch F., Shimasaki S., Ling N., Guillemin R.;
"Purification and partial characterization of a mitogenic factor
bovine liver: structural homology with basic fibroblast growth
                                                                                                                                                                                                                                                                                  Abraham J.A., Mergia A., Whang J.L., Tumolo A., Friedman J., Hjerrild K.A., Gospodarowicz D., Fiddes J.C.; "Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fibroblast growth factor.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Proc. Natl. Acad. Sci. U.S.A. 82:6507-6511(1985)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Biochem. Biophys. Res. Commun. 138:580-588(1986)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Regul. Pept. 16:135-145(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Regul. Pept. 12:201-213(1985)
                                                                                                                                                                                                                                                                                                                                                                 Science 233:545-548(1986)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Science 251:90-93(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE OF 10-155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE; 86095426.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE OF 25-41.
                                                                                                                                                                                                                                                SEQUENCE FROM N.A. MEDLINE; 86261806.
                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A. MEDLINE; 87217066.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE OF 21-40.
                                                                                                                                   FGF2 OR FGF-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TISSUE-KIDNEY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TISSUE-KIDNEY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              acidic FGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               actor.
                                                                                                                 FACTOR
```

from

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to licensee(ab)-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ä
-i- SUBUNIT: MONOMER.
-i- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RGVVSIKGVCANRYLAMKEDGRLLASKCVTDECFFFERLESN-----NYNTYRSRKYS-- 121
                          -! - SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LPALPEDGGSGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKL_JLQAEE 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                             KIDNEY-DERIVED GROWTH FACTOR.
CELL ATTACHMENT SITE (POTENTIAL).
CELL ATTACHMENT SITE (POTENTIAL).
                                                                                                                                                                                                                                   HEPARIN-BINDING GROWTH FACTOR 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 155;
                                                                                                                                                                           PRINTS: PR00262; ILLHBGF.
PRINTS: PR00263; HBGFFGF.
PROTE: PS00247; HBGFFGF. 1.
Growth factor: Mitogen; Vascularization; Heparin-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      42; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17250 MW; BE6CE70FA6107129 CRC64;
                                                                                                                                                                                                                                                                        HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 469; DB 1; I
Pred. No. 8.36e-88;
29; Mismatches 42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SWYVALKRIGQYKLGPKTGPGQKAILFLPMSAKS 155
                                                                                                                     EMBL; M13440; AAA30518.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   36.28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                          PIR; A24663; GKBOB.
PIR; A24819; A24819.
PIR; A32879; A32878.
PDB; 1BAS; 31-007-93.
PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        148.
155 AA;
                                                                                                                                                                                                                  3D-structure.
PROPEP
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                              SITE
BINDING
BINDING
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRAND
TURN
STRAND
                                                                                                                                                                                                                                                                                                             STRAND
                                                                                                                                                                                                                                                                                                                                STRAND
                                                                                                                                                                                                                                                                                                                                                            STRAND
                                                                                                                                                                                                                                                                                                                                                                                               STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                           HELIX
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAND
HELIX
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HELIX
STRAND
                                                                                                                                                                                                                                                                                                                                                                             STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                  STRAND
                                                                                                                                                                                                                                             CHAIN
SITE
                                                                                                                                                                                                                                                                                                                                                  HELIX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                122
                                                                                                                                                                                                                                                                                                                                                                                                                                            URN
                                                                                                                                                                                                                                                                                                                                                                                       IURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                op
ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
```

œ

ò

```
122 SWYVALKRIGQYKLGPKTGPGQKAILFLPMSAKS 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           amino
                            g
                                                                                                                                                                                                HERET REPAREMENT OF THE PROPERTY OF THE PROPER
                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@lsb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGENTS
IN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RGVVSIKGVCANRYLAMKEDGRLLASKCVTDECFFFERLESN-----NYNTYRSRKYS-- 121
                                                                                                                                                                                  01-FEB-1991 (Rel. 17, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTATROPIN)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LPALPEDGGSSAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEE 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                        Ovis aries (Sheep).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
Bovidae; Caprinae; Ovis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S Lett. 224:128-132(1987).
FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC FUNCTION. THE HEPARIN-BINDING STOWN A VARIETY OF CELL TYPES IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HEPARIN-BINDING GROWTH FACTOR 2. CELL ATTACHMENT SITE (POTENTIAL). CELL ATTACHMENT SITE (POTENTIAL). HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE; 88055577.
Simpson R.J., Moritz R.L., Lloyd C.J., Fabri L.J., Nice E.C.,
Rubira M.R., Burgess A.W.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Primary structure of ovine pituitary basic fibroblast growth actor. ":
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 1; Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HSSP, P09038; IBFF.
PFM. PF00167; FGF: 1.
PRINTS; PR00262; ILIHBGF.
PRINTS; PR00263; HBGFFGF.
PROSITE: PS00247; HBGF_FGF: 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
Sutton R., Ward W.G., Raphael K.A., Cam G.R.;
Submitted (SEP-1994) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SPARIN (POTENTIAL).
B5F2364BA610606D CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred. No. 2.83e-86;
30; Mismatches 42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CONCENTRATION OF THESE 2 GROWTH FACTORS SUBUNIT: MONOMER.
                                                                                                                                       155 AA
146 NWFVGLKKNGSCKRGPRTHYGQKAILFLPLPVSS 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 463;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HEPARIN
                                                                                                                                       PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4 8
90
7 31
119
17280 MW; h.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; L36136; AAA31519.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 35.8%;
Best Local Similarity 48.7%;
Matches 75; Conservative
                                                                                                                                       STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PIR; S00185; S00185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1
10
45
87
27
116
                                                                                                                                                                                                                                                                                                                                 FGF2 OR FGF-:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE OF
                                                                                                                                    FGF2 SHEEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 69
                                                                                                       RESULT
```

g

å 원 ò

```
MEDLINE; 86275260.
Gautschi P., Frater-Schroeder M., Boehlen P.;
"Partial molecular characterization of endothelial cell mitogens from
human brain: acidic and basic fibroblast growth factors.";
FEBS Lett. 204:203-207(1986).
                                                                                                                                                                                                                                           01-NOV-1988 (Rel. 09, Last sequence update)
01-NOV-1997 (Rel. 35, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
MEDLINE; 87217066.
Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.;
"Human basic fibroblast growth factor: nucleotide sequence, genomic organization, and expression in mammalian cells.";
Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                           Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Caput D.;
"High molecular, mass forms of basic fibroblast growth factor are infliated by alternative CUG codons.";
Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.; "Human brain-derived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitoganic activities."; Blochem. Blophys. Res. Commun. 135:541-548(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "A form of human basic fibroblast growth factor with an extended
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Kurokawa T., Sasada R., Iwane M., Igarashi K.;
"Cloning and expression of cDNA encoding human basic fibroblast
growth factor.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Abraham J.A., Whang J.L., Tumolo A., Mergia A., Friedman J., Gospodarowicz D., Fiddes J.C.; Human basic fibroblast growth factor: nucleotide sequence and genomic organization.";

EMBO J. 5:2523-2528(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE; 89184522.
Prats H., Kaghad M., Prats A.C., Klagsbrun M., Lelias J.M.,
Liauzun P., Chalon P., Tauber J.P., Amalric F., Smith J.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Eutelé
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ď.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sommer A., Brewer M.T., Thompson R.C., Moscatelli Rifkin D.B.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Biochem. Biophys. Res. Commun. 144:543-550(1987)
146 NWFVGLKKNGSCKRGPRTHYGQKAILFLPLPVSS 179
                                                                                                                                                         155 AA
                                                                                                                                                                                                                                                                                                                                                GROWTH FACTOR) (BFGF) (PROSTATROPIN).
                                                                                                                                                                                                                01-NOV-1988 (Rel. 09, Created)
01-NOV-1988 (Rel. 09, Last sequ
01-NOV-1997 (Rel. 35, Last anno
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EBS Lett. 213:189-194(1987).
                                                                                                                                                      STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                              sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                86186784.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A. MEDLINE; 87053817.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE OF 10-35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE OF 10-39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE; 87213238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               87162468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      [8]
SEQUENCE OF 2-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      terminus.,
                                                                                                                                                                                                                                                                                                                                                                          OR FGFB
                                                                                                                     5T 10
FGF2_HUMAN
P09038;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE;
```

actor.

X-RAY

```
| | || : : |||| || || :| :||:||| || || 86 VGEVYIKSTEFGQYLAMDIDGLLXGSQTPNEECLFLERLEENATPAPHYNTYISKKHAEK 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               69 RGVVSIKGVCANRYLAMKEDGRLLASKCVTDECFFFFRLESN----NYNTYRSRKYT-- 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9 LPALPEDGGSGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEE 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HEPARIN-BINDING GROWTH FACTOR 2. CELL ATTACHNENT SITE (POTENTIAL). CELL ATTACHMENT SITE (POTENTIAL). HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                 PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFEGF.
PR0SITE; PS00247; HBGFEGF. 1.
Growth factor; Mitogen; Vascularization; Heparin-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17254 MW; BE6CE13373007129 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          35.7%; Score 462; DB 1; 1
48.7%; Pred. No. 5.10e-86;
ative 30; Mismatches 42.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SWYVALKRTGQYKLGSKTGPGQKAILFLPMSAKS 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  :|:|:||: | | |::| ||||||||:: | NWFVGLKKNGSCKRGPRTHYGQKAILFLPLPVSS 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                  15-JUL-93.
03-APR-96.
                                                                                                                                                                  03-APR-96.
16-JUN-97.
               A26642.
B24243.
B24301.
B32878.
S00297.
                                                                                                                                                                                  IBFF; 16-JUN-97
IBFG; 31-JAN-94
                                                                                                                                                                                                                 2BFH; 30-APR-94
1BLA; 08-NOV-96
                                                                                                                                                                                                                                                  08-NOV-96
                                                                                                  2FGF; 15-APR-92
                                                                                                                    5-JUL-93
                                                                                                                                                                                                                                                                                     FGF:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local Similarity
Matches 75; Conser
                                                                                                                                                                                                                                                                                   PF00167;
                                                                                                                                                                                                                                                                                                                                                                 3D-structure.
PROPEP
CHAIN
SITE
                                                                B32878;
                                  B24243;
B24301;
                   126642;
                                                                                                                                 1FGA;
1BFB;
                                                                                                                    FGE;
                                                                                                                                                                  BFC;
                                                                                                                                                                                                                                                    1BLD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                  BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TURN
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HELIX
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAND
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HELIX
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HELIX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HELIX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        URN
 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    spectroscopy.";
Blochamistry 35:13552-13561(1996).
Blochamistry 35:13552-13561(1996).
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITYO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
               Story M.T., Esch F., Shimasaki S., Sasse J., Jacobs S.C., Lawson R.K., "Anino-terminal sequence of a large form of basic fibroblast growth factor isolated from human benign prostatic hyperplastic tissue."; Biochem. Biophys. Res. Commun. 142:702-709(1987).
                                                                                                                                                                                                                             MEDLINE; 94004464.
Eriksson A.E., Cousens L.S., Matthews B.W.;
Refinement of the structure of human basic fibroblast growth factor and art 1.6-A resolution and analysis of presumed heparin binding sites by selenate substitution.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE; 97040521.
MADY F.J., Seddon A.P., Boehlen P., Powers R.;
High-resolution solution structure of basic fibroblast growth factor determined by multidimensional heteronuclear magnetic resonance
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                               Zhang J., Cousens L.S., Barr P.J., Sprang S.R.;
"Three-dimensional structure of human basic fibroblast growth factor,
a structural homolog of interleukin 1 beta.";
Proc. Natl. Acad. Sci. U.S.A. 88:3446-3451(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "Three-dimensional structures of acidic and basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE; 91095983.
Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
Hsu B.T., Rees D.C.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE; 92121151.
Ago H., Kitagawa Y., Fujishima A., Matsuura Y., Katsube Y.;
"Crystal structure of basic fibroblast growth factor at 1.6-A
                                                                                                             MEDLINE; 91195367.
Eriksson A.E., Cousens L.S., Weaver L.H., Matthews B.W.;
"Three-dimensional structure of human basic fibroblast growth
                                                                                                                                                                                  Proc. Natl. Acad. Sci. U.S.A. 88:3441-3445(1991).
                                                                                                                                                                                                                                                                                                                                                 X-RAY CRYSTALLOGRAPHY (1.8 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS).
                                                                                                                                                                                                                 CRYSTALLOGRAPHY (1.6 ANGSTROMS).
                                                                                               X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAA52448.1; -.
AAA52533.1; ALT_INIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; M17599; AAA52534.1; ALT_INIT
                                                                                                                                                                                                                                                                                                                Protein Sci. 2:1274-1284(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Blochem. 110:360-363(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         X04431; CAA28027.1; -
X04432; CAA28028.1; -
X04433; CAA28029.1; -
MA7968; AAA52448.1; -
J04513; AAA52533.1; A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Science 251:90-93(1991).
                                                                                                                                                                                                                                                                                                                                                             MEDLINE; 91195368.
MEDLINE; 87156686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRUCTURE BY NMR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   resolution."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       factors.
```

;

Gaps

Indels

42;

EMBL; EMBL; EMBL; EMBL;

Length 155;

RESULT

```
115 118 H
154 AA; 17139 MW;
                                                                                                                                                                                                                                                                                       35.4%;
ilarity 50.7%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; M30644; AAA37621.1; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD;
                                                                                                                       154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HSSP, P09038; 1BFF.
MGD; MGI:95516; FGF2.
PFAM: PF00167; FGF; 1
                                                                                                                                                                                                                                                                                                                            Best Local Similarity
Matches 74; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A. MEDLINE; 90201563.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LT 12
FGF2_MOUSE
P15655;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PIR; C37360
                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                            BINDING
                                                                                                                                                                                           BINDING
                                                                                               PROPEP
                                                                                                                                 CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESCRIPTION OF SECULAR TO SECULAR
DR WE FEE FEE S
                                                                                                                                                                                                                                                                                                                                                                                                                            음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAIN-SPRAGUE DAWLEY, TISSUE-OVARY,
MEDLINE; 89061721.
Shimasaki S., Emoto N., Koba A., Mercado M., Shibata F.,
Cooksey K., Baird A., Ling N.;
"Complementary DNA cloning and sequencing of rat ovarian basic fibroblast growth factor and tissue distribution study of its mRNA.";
Biochem. Biophys. Res. Commun. 157:256-263(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EI-HUSSEIN A.E.D., Paterson J.A., Myal Y., Shiu R.P.C.;
"PCR detection of the rat brain basic fibroblast growth factor (bFGF)
mRNA containing a unique 3' untranslated region.";
Blochim. Biophys. Acta 1131:314-316 (1992).

-I. FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIGGENIC AGENT:
IN VIVO AND ARE POTENT MITOGENS FOR A VARLETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -i- TISSUE SPECIFICITY: FOUND IN ALL THE TISSUES EXAMINED.
-i- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                  01-JAN-1990 (Rel. 13, Created)
01-JAN-1990 (Rel. 13, Last sequence update)
15-JUL-1998 (Rel. 36, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
GROWTH FACTOR) (BFGF) (PROSTATROPIN).
                                                                                                                                                                                                                                                                                                                                                           Rattus norvegicus (Rat).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Buteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Kurokawa T., Seno M., Igarashl K.;
"Nucleotide sequence of rat basic fibroblast growth factor cDNA.";
Nucleic Acids Res. 16:5201-5201(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pasumarthi K.B.S., Jin Y., Cattini P.A.; "Loning of the rat fibroblast growth factor-2 promoter region and its response to mitogenic stimuli in glioma C6 cells."; J. Neurochem. 68:898-908(1997).
                                                                                               154 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE OF 1-28 FROM N.A.
STRAIN-SPRAGUE-DAWLEY; TISSUE-TESTIS;
MEDLINE; 97200905.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE OF 35-154 FROM N.A.
STRAIN-SPRAGUE-DAWLEY; TISSUE-BRAIN;
MEDLINE; 92329546.
                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; M22427; AAA41210.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; X07285; CAA30265.1; -. EMBL; U78079; AAC53225.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              X61697; CAA43863.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRINTS; PR00262; IL1HBGF
                                                                                               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PIR; S00876; S00876.
PIR; A31674; A31674.
HSSP; P09038; IBFF.
PFAM; PF00167; FGF; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SUBUNIT: MONOMER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE; 88262516.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                            FGF2 OR FGF-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TISSUE-BRAIN
                                                                                        FGF2_RAT
P13109;
```

EMBL;

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation for European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                    ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hebert J.M., Basilico C., Goldfarb M., Haub O., Martin G.R.;
"Isolation of cDNAs encoding four mouse FGF family members and
characterization of their expression patterns during embryogenesis.";
bev. Biol. 138.454-463(1990).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIGGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS OF A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -!- SUBUNIT: MONOMER.
-!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         76 VCANRYLAMKEDGRLLASKCVTEECFFFERLESN-----NYNTYRSRKYS--SWYVALKR 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FGF2_mvcv-

P15655;

01-APR-1990 (Rel. 14, Last sequence update)

01-APR-1996 (Rel. 33, Last annotation update)

01-APR-1996 (Rel. 33, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                 16 GGGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKG 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         34 ANGTLIDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYKK 93
                                                                                                                                                                                                                                                                                                                                                                                 7; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteléostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                    ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HEPARIN-BINDING GROWTH FACTOR 2.
                                                                                                                                 HEPARIN-BINDING GROWTH FACTOR HEPARIN (POTENTIAL)...
HEPARIN (POTENTIAL)...
1AOF14FF42398403 CRC64;
                                                                                                                                                                                                                                                                                                                Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PFAM; PF00167; FGF; 1.
PRINTS; PR00262; IL1HBGF.
PRINTS; PR00262; IL1HBGF.
PROSITE; PS00247; HBGF-FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
PROPEP 1 9
CHAIN
PRINTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                                                             Pred. No. 5.33e-85;
26; Mismatches 39; Indels
                                                                                                                                                                                                                                                                                                             DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          154 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                Score 458;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | | | | ::| |||||||||:: |
154 NGSCKRGPRTHYGQKAILFLPLPVSS 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              129 TGQYKLGSKTGPGQKAILFLPMSAKS 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRT;
```

Gaps

.. 8

48; Indels

Mismatches

28;

```
77; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PROPEP
                                                                                                                                                                                                                                      118
       Matches
                                                  ద
                                                                                             ò
                                                                                                                                        g
                                                                                                                                                                                      ò
                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                            This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                           ä
                                                                                                                                                                                                              41 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 100
                                                                                                                                                                                                                                                                               83 AMKEDGRLLASKCVTEECFFFERLESN-----NYNTYRSRKYS--SWYVALKRTGQYKLG 135
                                                                                                                                                                                                                                                                                                       SUBUNIT: MONOMER.
MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-FEB-1996 (Rel. 33, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
01-NOV-1997 (Rel. 35, Last amontation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECIRSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTATROPIN)
                                                                                                                                                                                      23 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYL 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TISSUE-EYE;
MEDLINE: 94296558.
Kusewitt D.F., Sabourin C.L.K., Sherburn T.E., Ley R.D.;
Kusewitton of cDNA encoding basic fibroblast growth factor the marsupial Monodelphis domestica.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Monodelphis domestica (Short-tailed grey opossum).
Eukaryota; Metazoa: Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Metatheria; Didelphimorphia; Didelphidae; Monodelphis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DNA CELL BIOL. 13:549-554(1994).

-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIGGENIC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES VITRO. THERE ARE DIFFERENCES IN THE IISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                           7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HEPARIN-BINDING GROWTH FACTOR HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
7E655FCC49BF1209 CRC64;
                                                                                        Score 453; DB 1; Length 154;
Pred. No. 9.97e-84;
23; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 450; DB 1; Length 156; Pred. No. 5.78e-83;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PROSITE; PS00247; HBGF_FGF; 1.

Growth factor; Mitogen; Vascularization; Heparin-binding.
PROPEP 1 9 BY SIMILARITY.
CHAIN 10 156 HEPARIN BINDING GROWTH FACTOR BINDING 28 32 HEPARIN (POTENTIAL).
BINDING 117 120 HEPARIN (POTENTIAL).
SEQUENCE 156 AA; 17303 MW; 7E655FCC49BF1209 CRC64;
                            HEPARIN (POTENTIAL).
689F677416274388 CRC64;
  HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; 215154; CAA78854.1; ALT_INIT.
HSSP; P09038; 1BFF.
PFAM; PF00167; FGF; 1.
  30 HE
118 HE
17153 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRINTS; PR00262; IL1HBGF.
PRINTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGF_FGF; 1
                                                                                                                                                                                                                                                                                                                                                                                                  161 PRTHYGOKAILFLPLPVSS 179
                                                                                                                                                                                                                                                                                                                                                                       136 SKTGPGQKAILFLPMSAKS 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                34.8%;
                                                                                        7 Match 35.0%;
Local Similarity 52.5%;
les 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
26
115 1
154 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FGF2_MONDO
P48798;
  BINDING
BINDING
SEQUENCE
                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13
                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SULT
       FT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SO PRESENTATION OF THE PRE
                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                   ö
```

Best Local Similarity

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                       LQLQAEERGVVSIKGVCANRYLAMKEDGRLLALKYVTEECFFFERLESN-----NYNTYR 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             embryo.";
Cell 51:869-877(1987).
-!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                             01-OCT-1989 (Rel. 12, Created)
01-JAN-1990 (Rel. 13, Last sequence update)
01-NOV-1997 (Rel. 35, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
4 GSITTLPALSGDGG-GGGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGIREKSDPNIK 62
                         MEDLINE; 89058621.
Kimelman D., Abraham J., Haaparanta T., Palisi T., Kirschner M.;
"The presence of fibroblast growth factor in the frog egg: its role as a natural mesoderm inducer.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Xenopus laevis (African clawed frog).
Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi;
Amphibia; Batrachia, Anura; Mesobatrachia, Pipoldea; Pipidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE; 88052890.
Kimelman D., Kirschner M.;
"Synergistic induction of mesoderm by FGF and TGF-beta and the identification of an mRNA coding for FGF in the early Xenopus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HEPARIN-BINDING GLOWTH FACTOR : HEPARIN (POTENTIAL).
HEPARIN (POTENTIAE).
MISSING (IN REF. ?).
036735C8063142FD CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 438; DB 1; Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRINTS; PR00262; ILLHBGF.
PRINTS; PR00243; HBGFPGF.
PR0SITE; PS00247; HBGFPGF. 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pred. No. 6.42e-80;
29; Mismatches 45; Indels
                                                                                                                                                                                                                                            SRKYS--NWYVALKRTGQYKLGSKTGPGQKAILFLPMSAKS 156
                                                                                                                                                                                                                                                                                                                                                                             155 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ..
W
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL; M18067; AAA49726.1; -. PIR; A29618; A29618. PIR; A40117; A40117.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              33.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Science 242:1053-1056(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE OF 95-155 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      116 119
111 111
155 AA; 17241 M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                             STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GROWTH FACTOR) (BFGF).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Kenopodinae; Xenopus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HSSP; P09038; 1BFF.
PFAM; PF00167; FGF;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity
Matches 73; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FGF2 OR FGF-2
                                                                                                                                                                                                                                                                                                                                                    LT 14
FGF2_XENLA
P12226;
```

Search completed: Tue Aug 29 16:14:40 2000 Job time: 26 secs.

ŏ

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its way non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN-NEW SELAND WHITE; TISSUE-SMOOTH MUSCLE;
MEDLINE; 93343209.
Winkles J.A., Friesel R., Alberts G.F., Janat M.F., Liau G.;
Winkles J.A., Friesel R., Alberts G.F., Janat M.F., Liau G.;
Winkles J.A., Fathol basic fibroblast growth factor in an immortalized rabbit smooth muscle cell line.";
Am. J. Pathol. 143:518-527(1993).
-: FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIGGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61 GVVSIKGVCANRYLAMKEDGRLLASKCVTDECFFFERLESN----NYNTYRSRKYS--S 113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                          RGVVSIKGITANRYLAMKEDGRLTSLRCITDECFFFERLEAN-----NYNTYRSRKYS-- 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 PALPEDGGSGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEER 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               26 VPSPAGARANGTLLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAES 85
LPTESEDGGNTPFSPGSFKDPKRLYCKNGGFFLRINSDGRVDGSRDKSDSHIKLQLQAVE 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                              01-FEB-1996 (Rel. 33, Last sequence update)
1-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 (HBGF-2) (BASIC FIBROBLAST GROWTH
FACTOR) (BFGF) (PROSTATROPIN) (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                           Oryctolagus cuniculus (Rabbit).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     or send a...

REMBL, L12034; AAA31248.1; -..

R HSSP; P000183; 1EF; 1.

DR PROSITE; PS00247; HBGF_FGF; 1.

Growth factor; Mitogen; Vascularization; Heparin-binding.

HEPARIN (POTENTIAL).

HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 137;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 418; DB 1; Le
Pred. No. 7.30e-75;
27; Mismatches 40;
                                                                                                                                                                            137 AA
                                                                                                                                                       SWYVALKRIGQYKNGSSIGPGQKAILFLPMSAKS 155
                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 114 WYVALKRTGQYKLGSKTGPGQKAI 137
                                                                                                                                                                                                                                                                                                           01-FEB-1996 (Rel. 33, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              32.3%;
larity 48.6%;
Conservative
                                                                                                                                                                                                                                                                         STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SUBUNIT: MONOMER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 70; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                       FGF2_RABIT
P48799;
                                                                                                                                                     122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          87
                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                        g
                                                                                                                 ò
                                                                                                                                                   g
                                                                                                                                                                                          ò
g
                                    ŏ
```

****	(TM)	***
****		****
****	' '	****
*****	\[ \]	*****
******		******
*******		******
****************************		*******
*******		******
*******	1	<b>化多种 化多种 化多种 化多种 化多种 化多种 化多种 化多种 化多种 化多种 </b>

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

protein - protein database search, using Smith-Waterman algorithm MPsrch\_pp :uo

Tue Aug 29 16:14:58 2000; MasPar time 16.85 Seconds 740.486 Million cell updates/sec rabular output not generated

Title:

>US-09-121:0178-29 (1\*180) from US09121017B.pep 1294 1294 1 MSRGAGRVQGTLQALVFLGV......PRTHYGQKAILFLPLPVSSD 180 Description: Perfect Score: Sequence:

PAM 150 Gap 11 Scoring table:

Post-processing:

Searched:

225878 seqs, 69334122 residues

Minimum Match 0% Listing first 45 summaries

Database:

sptrembl12
1:sp\_archea 2:sp\_bacteria 3:sp\_fungi 4:sp\_human
5:sp\_lnvertebrate 6:sp\_mammal 7:sp\_mhc 8:sp\_organelle
9:sp\_phage 10:sp\_plant 11:sp\_rodent 12:sp\_unclassified
13:sp\_vertebrate 14:sp\_virus

Mean 42.961; Variance 69.627; scale 0.617

Statistics:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

sult No.	Score	Query Match	Query Match Length DB	8	ID	Description	Pred. No.
1	462	35.7	196	4	P78443	21 KD BASIC FIBROBLAST	2.02e-82
7	456	35.2	130	9	797770	BASIC FIBROBLAST GROWT	5.88e-81
ო	327	25.3	101	2	P79706	BASIC FGF (FRAGMENT).	4.69e-50
4	291	22.5	146 1	2	007659	FIBROBLAST GROWTH FACT	1.08e-41
ស	270	20.9	212 1	2	042407	FIBROBLAST GROWTH FACT	6.87e-37
9	266	20.6	29	4	Q16089	ACIDIC FIBROBLAST GROW	5.55e-36
7	267	20.6	9	4	016588	ACIDIC FIBROBLAST GROW	3.29e-36
œ	264	20.4	70 1	디	054837	FIBROBLAST GROWTH FACT	1.58e-35
σ	258	19.9	115 1	⊒	060487	BASIC FIBROBLAST GROWT	3.57e-34
10	253	19.6	252	=	960680	FHF-4B.	4.75e-33
11	247	19.1	194	ø	P79150	KERATINOCYTE GROWTH FA	1.05e-31
12	238	18.4	243 1	<u>~</u>	Q9W6A1	FIBROBLAST GROWTH FACT	1.06e-29
13	234	18.1	192	4	095830	FIBROBLAST GROWTH FACT	8.13e-29
14	234	18.1	245 1	13	Q9W6A2	FIBROBLAST GROWTH FACT	8.13e-29
15	233	18.0		4	099517	FIBROBLAST GROWTH FACT	1.35e-28
16	212	16.4	196 1	13	Q9YH31	PUTATIVE FIBROBLAST GR	5.27e-24
17	212	16.4		13	Q9YGD8	FIBROBLAST GROWTH FACT	5.27e-24
18	190	14.7	129	4	060371	R33683_2.	2.60e-19
19	189	14.6	114	4	016443	BASIC FIBROBLAST GROWT	4.22e-19
20	189	14.6	114	4	000527	BASIC FIBROBLAST GROWT	4.22e-19

2.90e-18	1.22e-17	3.42e-16	2.25e-15	2.25e-15	9.18e-15	3.74e-13	9.36e-13	9.36e-13	1.48e-12	3.68e-12	3.29e-10	5.18e-07	1.15e-03	1.65e-02	2.40e-02	3.47e-02	3.47e-02	3.47e-02	3.47e-02	3.47e-02	3.47e-02	3.47e-02	1.49e-01	2.12e-01
FIBROBLAST GROWTH FACT	KERATINOCYTE GROWTH FA	FGF HOMOLOG.	FIBROBLAST GROWTH FACT	LET-756 PROTEIN.	FIBROBLAST GROWTH FACT	FGF-19.	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	FGF=ACMNPV ORF32.	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	CONSERVED PROTEIN.	FIBROBLAST GROWTH FACT	211AA LONG HYPOTHETICA	130K-HMGD (FRAGMENT).	HEMAGGLUTININ.	LYS-GINGIPAIN.	LYS-GINGIPAIN.	PORPHYPAIN.	LYSINE SPECIFIC CYSTEI	LYSINE-SPECIFIC CYSTEI	METHYL-ACCEPTING CHEMO	CONSERVED HYPOTHETICAL
P79925	077561	P91672	057341	076831	969060	095750	042278	014915	035340	092401	Q9YMH2	097573	027154	062682	Q9YEE7	Q9ZNB5	P96967	P72194	P72197	951817	052050	007442	051623	025299
13	9	Ŋ	13	Ŋ	13	4	13	4	11	14	14	9	Н	9	-	~	~	~	~	~	~	7	~	~
200	74	770	210	425	204	216	210	244	78	182	285	73	822	82	211	1223	1358	1723	1723	1732	1732	1732	753	232
14.3	14.1	13.5	13.2	13.2	13.0	12.4	12.2	12.2	12.1	12.0	11.2	9.6	8.1	7.9	7.8	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.4	7.3
185	182	175	171	171	168	160	158	158	157	155	145	128	109	102	101	100	100	100	100	100	100	100	96	95
21	22	23	24	25	56	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

## ALIGNMENTS

RESULT 1  ID P8443  ID P8443;  DY P8443;  DY P8443;  DY O1-MAY-1997 (TrEMBLrel. 03, Created)  DY O1-MAY-1997 (TrEMBLrel. 03, Last sequence update)  DY O1-MAY-1997 (TrEMBLrel. 12, Last annotation update)  DY O1-WOV-1999 (TREMBLREL. 13, Last annotation update)  DY O1-WOV-1999 (TREMBLREL. 13, Last annotation update)  DY O1-WOV-1999 (TREMBLREL. 13, Last annotation with last annotation of last annotation of last annotation with nested polymerase chain reaction sws  RY High molecular mass forms of basic fibroblast growth factor transcripts in human and cumulus cells from in vitro fertilisation patie .s., landwas and cumulus cells from in vitro fertilisation patie .s., landwas and cumulus cells from in vitro fertilisation patie .s., landwas and cumulus cells from in vitro fertilisation patie .s., landwas and cumulus cells from in vitro fertilisation patie .s., landwas and cumulus cells from in vitro fertilisation patie .s., landwas proof 13 May 19875E39 CRC32;  DR REME, 547380; AAD13853.1;
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

;;

50 LPALPEDGGSGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEE 109 

g ö

Gaps

7;

Indels

Length 101;

RESULT
ID 07
AC 07
DT 01
DT 01
DE BA

셤

ò

<u>A</u> ö 

```
042407 PRELIMINARY; PRT; 212 AA.
042407;
01-3AN-1998 (TrEMBLrel. 05, Created)
01-JUN-1999 (TrEMBLrel. 12, Last annotation update)
01-NOV-1999 (TREMBLrel. 12, Last annotation update)
FIBROBLAST GROWTH FACTOR 10.
Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Archosauria; Aves;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Archosauria; Aves;
Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               46 PKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVXIKSTETGQYLAMDTD 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               45 ERVSAMVKLOLQAEERGVVSIKGVSANRFLAMKEDGRLLALKCATEECFFFERLESN--- 101
                                                                                                                                                                                                                                                        1 PKRLYCKNGGFFLRINSDGKVDGAREKSDSYIKLQLQAEERGVVSIKGVCANRYLAMKDD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BORJA A.Z., ZELLER R., MEIJERS C.;
"Expression of alternatively spliced bFGF first coding exons
antisense mRNAs during chicken embryogenesis.";
bev. Biol. 157:110-118(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  22.5%; Score 291; DB 13; Length 146; 45.9%; Pred. No. 1.08e-41;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE; 90382254.
MITRANI E., GRUENBAUM Y., SHOHAT H., ZIV T.;
"Fibroblast growth factor during mesoderm induction in the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          102 --NYNTYRSRKYSD--WYVALKRTGQYKPGPKTGPGQKAILFLPMSAKS 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       :|||| |:| :: |:|:||: | ||:| |||||||: |
131 APHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHYGQKAILFLPLPVSS 179
                                                                                                                                                                                                                                                                                                                                                                                                      106 GLLYGSQTPNEECLFLERLEENATPAPHYNTYISKKHAEKNWFVGLKK 153
                                                                                                                                                                                                                                                                                                                                                                      61 GRLMALKWITDECFFFERLESN----NYNTYRSRKYSD--WYVALKR 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Last sequence update)
Last annotation update)
                                                                                                                                          Score 327; DB 13;
Pred. No. 4.69e-50;
                                                                                                                                       DB 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  146 AA; 16182 MW; 44C5274B CRC32;
                                                                                   1CD93BB0 CRC32;
                                                                                                                                                                                                 18; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Created)
                               1 1
101 101
101 AA; 11907 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PROSITE; PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               007659
007659;
007659;
01-NOV-1996 (TrEMBLrel. 01, Cr
01-NOV-1996 (TrEMBLrel. 01, La
01-NOV-1999 (TrEMBLrel. 12, La
FIBROBLAST GROWTH FACTOR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Development 109:387-393(1990).
EMBL, WB5706, AAA48616.1; -
EMBL, X56804; CAA40139.1; -
HSSP; P09038; 2BFH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE OF 52-85 FROM N.A. MEDLINE; 90382254.
                                                                                                                                          25.3%;
50.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity 45.9%;
les 50; Conservative
                                                                                                                                                                       Best_Local Similarity 50.9%;
Matches 55; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IL1HBGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gallus gallus (Chicken)
PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PFAM; PF00167; FGF;
PRINTS; PR00262; IL1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A. MEDLINE; 93246053.
                                                         NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  embryo.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                          Query Match
                               NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2017

2017

2017

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

2019

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COEPTAGE
                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
        REFS
                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 KEDGRLLASKCVTDECFFFERLESN----NYNTYRSRKYS--SWYVALKRTGQYKLGPK 113
                               110 RGVVSIKGVCANRYLAMKEDGRLLASKCVTDECFFFERLESN-----NYNTYRSRKYT-- 162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 FKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYLAM 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TISSUE-EMBRYO;
SUZUKI A.S., TABATA T., SAKAGUCHI K., TAKABATAKE T., TAKESHIMA K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                oŧ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "Serial expression of the genes in a mesodermalizing ectoderms early Cynops gastrula.";
Submitted (NOV-1996) to the EMBL/GenBank/DDBJ databases.
EMBL; BAB443; BAA13958.1; -.
HSSP; P09038; ZBFH.
PROSITE; PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASIC FGF (FRAGMENT).
Cynops pyrthogaster (Japanese common newt).
Elkaryota: Merazoa: Chordata: Craniata; Vertebrata: Amphibia;
Batrachia: Caudata; Salamandroidea; Salamandridae; Cynops.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Canis familiaris (Dog).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Carnivora; Fissipedia; Canidae; Canis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 130;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TISSUB-ADERNAL GLAND;
TROCHTA O.A., JACOBS R.M., LAMARRE J.;
TROCHTA O.A., JACOBS R.M., LAMARRE J.;
"The role bFGF in canine Hemangiosarcoma.";
Submitted (APR-1998) to the EMBL/GenBank/DDBJ databases.
EMBL; AF060562; AAC35912.1;
HSSP; P09038; IBFF.
PROSITE: PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-WAY-1997 (TrEMBLrel. 03, Created)
01-WAY-1997 (TrEMBLrel. 03, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 456; DB 6; Le
Pred. No. 5.88e-81;
21; Mismatches 36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               130 AA; 14902 MW; DB6A90A4 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         101 AA
                                                                                                                                                                                                                                                                                                               130 AA.
                                                                                                                                                                       163 SWYVALKRTGQYKLGSKTGPGQKAILFLPMSAKS 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                    BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT)
                                                                                                                                                                                                                                                                                                                                                                   08, Created)
08, Last sequ
12, Last anno
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 35.2%;
Best Local Similarity 53.3%;
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       114 TGPGQKAILFLPMSAKS 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                01-NOV-1998 (TrEMBLrel.
01-NOV-1998 (TrEMBLrel.
01-NOV-1999 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                               LT 2
077767
077767;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 3
ID P79706
AC P79706;
```

ð,

g

ð

셤

early chick

7;

Indels

à

g ò 셤

ò

```
MEDLINE; 94069734.
ZHAO X.M., YEOH T.K., HIEBERT M., FRIST W.H., MILLER G.G.;
"The expression of acidic fibroblast growth factor (heparin-binding growth factor-1) and cytokine genes in human cardiac allografts and colls."
                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE; 92202357.
LI Y.L., KHA H., GOLDEN J.A., MIGCHIELSEN A.A.J., GOETZL E.J.,
LI Y.L., KHA H., GOLDEN J.A., MIGCHIELSEN A.A.J., GOETZL E.J.,
TYRCK E.J.;
"An acidic fibroblast growth factor protein generated by alternate splicing acts like an antagonist.";
J. Exp. Med. 175:1073-1080(1992).
EMBL; S67292, AAB29058-11;
EMBL; S67292, AAB29058-11;
HSSP; POS230, ZAXM.
HSSP; POS230, ZAXM.
NON_TER 60
                                       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 70;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 60;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAIN-C3H/HEN; TISSUE-LIVER;
ZHANG Y. X., HACKSHAW K.V.;
Submitted (JUL-1997) to the EMBL/GenBank/DDBJ databases.
EMBL; AF012926; AAB94020.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-JUN-1998 (TrEMBLrel. 06, Created)
01-JUN-1998 (TrEMBLrel. 06, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
FIBROBLAST GROWTH FACTOR-1 (FRAGMENT).
Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01.NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
BASIC FIRROBLAST GROWTH FACTOR (FRAGMENT).
Cavia porcellus (Guinea pig).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 267; DB 4; Le
Pred. No. 3.29e-36;
2; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 264; DB 11;
Pred. No. 1.58e-35;
1; Mismatches 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6CCC7DFF CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           70 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           70 AA; 7677 MW; 15A1BE5E CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             35 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQH 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           115 AA
                                                                                                                                                                                                                                                                                                                                                       Transplantation 56:1177-1182(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60 60
60 AA; 6697 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity 87.8%;
Matches 36; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Match 20.4%;
Local Similarity 97.2%;
les 35; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HSSP; P05230; 2AXM.
PFAM; PF00167; FGF; 1.
NON_TER 70 70
   Homo sapiens (Human)
                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     060487;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JT 8
054837
054837;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LT 9
Q60487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
          음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ID DATE OF THE READ OF THE REA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SE DI DI SE 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δý
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                  OHUCHI H., NAKAGAWA T., YAMAMOTO A., ARAGA A., OHTA T., ISHIMARU Y., YOSHIOKA H., KUWANA T., NOHNO T., YAMASAKI M., ITOH N., NOJI S.; The mesenchymal factor, FGF10, initiates and maintains the outgrowth of the chick limb bud through interaction with FGF8, an apical ectodermal factor.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  122 IGVVAVKSIKSNYYLAMNKKGKVYGSKEFNSDCKLKERIEENGYNT--YAS-LNWKHNGR 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    64 PSSAGRHVRSYNHLQGDVRKRKL-Y-SYNKYFLKIEKNGKVSGTKKENCPFSILEITSVE 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ZHAO X.M., YEOH T.K., HIEBERT M., FRIST W.H., MILLER G.G.; The expression of acidic fibroblast growth factor (heparin-binding growth factor-1) and cytokine genes in human cardiac allografts and cells.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 212;
Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 270; DB 13; Length 21
Pred. No. 6.87e-37;
36; Mismatches 59; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 59;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        016089;
01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
ACIDIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      016588 PRELIMINARY; PRT; 60 AA.
016588; 01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1999 (TrEMBLrel. 01, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
ACIDIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 266; DB 4; 1
Pred. No. 5.55e-36;
1; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eutheria; Primates; Catarrhini; Hominidae; Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQH 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          212 AA; 23631 MW; C8AB1883 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1C932B1D CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                179 OMFVALNGRGATKRGQKTRRKNTSAHFLPMVVMS 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            146 NWFVGLKKNGSCKRGPRTHYGQKAILFLDLDVSS 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               59 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Transplantation 56:1177-1182(1993).
EMBL; S67294; AAB29059.1; -.
SSP; P05230; ZAXM.
PFAM; PF00167; FGF; 1.
NON_TER 59
                                                                                                                                                                                                                                                                                                        Development 124:2235-2244(1997).
EMBL, D86333; BAA24945.1; -.
HSSP, P01966; 1BAR.
PFAM; PF00167; FGF; 1.
PRINTS; PR00263; HBGFFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        59 AA; 6595 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 20.9%;
Best Local Similarity 34.4%;
Matches 53; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7 Match 20.6%;
Local Similarity 92.3%;
Les 36; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                 SEQUENCE FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE; 94069734.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              o16089
```

ö

Gaps

ö

Indels

ö

Gaps

ö

Indels

18 38

ð

ò

RESULT ID 011 AC 011 DT 011 DT 011 DE AC

Matches

SHRFS

Mammalia;

Matches

ô

```
173 PVRGKKTKKEQKTAHFLPMAIT 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           157 CKRGPRTHYGQKAILFLPLPVS 178
                                                                                                                                                                                                                                            PROSITE; PS00247; HBGF_EGF; 1.
PFAM; PF00167; EGF; 1.
PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFEGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity 31.5%;
Matches 41; Conservative
01-MAY-1997 (TrEMBLrel. 03, 01-NOV-1999 (TrEMBLrel. 12, KERATINOCYTE GROWTH FACTOR.
                                                                                                                                                                                                                                                                                                                                         y Match 19.1%;
Local Similarity 34.5%;
hes 49; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRELIMINARY;
                                            Canis familiaris (Dog)
                                                                                                           SEQUENCE FROM N.A. MEDLINE; 96226403.
                                                                                                                                          CANATAN H.,
                                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        л 12
Q9W6A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q9W6A1;
                                                                                                                                                                                                                                                                                                                                                                         datches
 엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      80 LYCRQG-YYLQMHPDGALDGTKDDSTNSTLFNLIPVGLRVVAIQGVKTGLYIAMNGEGYL 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYLAMDTDGLL 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 139 YPSELFTPECKFKESVFENYYVI--YSSMLYRQQESGRAWFLGLNKEGQVMKGNRVKKTK 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TISSUE-BRAIN;
MEDLINE; 98267141.
YAMANOTO S., MIKAMI T., OHBAYASHI N., OHTA M., ITOH N.;
Structure and expression of a novel isoform of mouse FGF homologous factor (FHF)-4.";
                                                                                                                                                                                                                                                                             1 GFFLRIHPDGRVDGVREKTDPHIKHNFKPRA-EELCYQGSLSNRYLAMKEDGRLLASKCV 59
                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4;
                                                                                                                                                                                                                                                ю
Э
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Rattus norvegicus (Rat), and Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 252;
                                                                                                                                                                                                                  Length 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         29; Mismatches 52; Indels
                                                                                                                                                                                                                                               22; Mismatches 31; Indels
                                                                        RICCIARDELLI C.;
Submitted (JAN-1996) to the EMBL/GenBank/DDBJ databases.
EMBL; L75974; AAA85394.1; -.
HSSP; P09038; ZBFH.
                                                                                                                                                                                                                                                                                                                                                          60 IDECFFFERLESN----NYNTYRSRKYS--SWYVALKRIGQYKLG 98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Last sequence update)
Last annotation update)
                                                                                                                                                                                                               h Similarity 42.5%; Pred. No. 3.57e-34; 45; Conservative 22; Mismatches 31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 253; DB 11;
Pred. No. 4.75e-33;
                                                                                                                                                                  NON_TER 1 1 1 SEQUENCE 115 AA; 13495 MW; 4B12914A CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PFAM; PF00167; FGF; 1.
SEQUENCE 252 AA; 28364 MW; 1DFD5B4B CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         194 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                   252 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Biochim. Biophys. Acta 1398:38-41(1998)
EMBL; AB008908; BAA31544.1; -.
EMBL; AB008907; BAA31543.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LT 11
P79150 PRELIMINARY; PRT;
P79150;
01-MAY-1997 (TrEMBLrel. 03, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HSSP; P03968; IBAR.
PROSITE; PS00247; HBGF_FGF; 1.
                                                                                                                                   PROSITE; PS00247; HBGF_FGF; 1.
PFAM; PF00167; FGF; 1.
NON TER 1 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19.6%;
ilarity 34.6%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-NOV-1998 (TrEMBLrel. 08, 01-NOV-1998 (TrEMBLrel. 08, 01-NOV-1999 (TrEMBLrel. 12,
                                                                                                                                                                                                                                                                                                                                                                                                                                   PRELIMINARY;
                                                                                                                                                                                                                                  Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
Matches 45; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             197 PAAHFLPKPL 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          168 KAILFLPLPV 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                            SEQUENCE FROM N.A
                                                             TISSUE-PROSTATE;
                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                    T 10
```

49

g

οy

õ

셤 ò g RESULT ID P7 AC P7 DT 01

```
canine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Archosauria; Aves;
Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   77 LF-SQQEYFLQMHPDGTIDGTKDENSDYTLFNLIPVGLRVVAIQGVKAGLYVAMNAEGYL 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         59 MEGGDIRVRRLFCRTQ-WYLRIDKRGKVKGTQEMKNSYNIMEIRTVAVGIVAIKGVESEY 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          118 YLAMNKEGKLYAKKECNEDCNFKELILEN----HYNTYASAKWTHSGGEMFVALNQKGV 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    49 LYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYLAMDTDGLL 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    YSSDVFTPECKFKESVFENYYVI--YSSTLYRQQESGRAWFLGLNKEGQIMKGNRVKKTK 193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          109 YGSQTPNEECLFLERLEENATPAPHYNTYISKKH-AEKNWFVGLKKNGSCKRGPRTHYGO 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
MEDLINE; 99065510.
MEDLINE; 99065510.
MEDLINE; 90065510.
"Expression of chicken fibroblast growth factor homologous factor (FFF)-1 and of differentially spliced isoforms of FHF-2 during development and involvement of FHF-2 in chicken limb development."; Development 126:409-421(1999).
EMBL, AF108754, AB021575.1;
EMBL, AF108754, HBGF_FGF; 1.
SEQUENCE 243 AA, 27455 MW; A9E6EBCD CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                          BRUEGGEMEIER R.W., LIN Y.C.;
"Keratinocyte growth factor (KGF/FGF-7) has a paracrine role in prostate; molecular cloning of mRNA encoding canine KGF.";
prostate; molecular cloning of mRNA encoding canine KGF.";
EMBL; U80800; AAB38972.1;
HSSP; P05230; 2AFG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ..
&
                                                                                                                             Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
                                                                                                                                                                                                                                                                                                     CHANG W.Y., SUGIMOTO Y., SHIDAIFAT F., KULP S.K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 238; DB 13; Length 243;
Pred. No. 1.06e-29;
35; Mismatches 50; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 194;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-NOV-1999 (TrEMBLrel. 12, Created)
01-NOV-1999 (TrEMBLrel. 12, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
FIBROBLAST GROWTH FACTOR 12 ISOFORM A.
Last sequence update)
Last annotation update)
                                                                                                                                                                Eutheria; Carnivora; Fissipedia; Canidae; Canis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 247; DB 6; Pred. No. 1.05e-31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     194 AA; 22476 MW; 2B71A8ED CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       33; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  243 AA.
```

-Tue

S

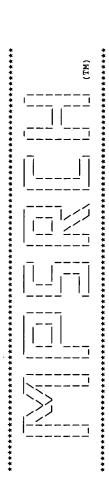
```
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                        099517;
                                                                                                                                                                                                                                                                                                                                                                                                       T 15
099517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 119
                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
OGO
DA
ODD
DD
ODD
ODD
OCC
DD
O
                                                                           g
                                                                                                                            ò
                                                                                                                                                                        g
                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Archosauria; Aves;
Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TISSUE-BRAIN;
MEDLINE; 99168751.
GECZ J., BAKER E., DONNELLY A., MING J.E., MCDONNALD-MCGINN D.M.,
SPINNER N.B., ZACKAI E.H., SUTHERLAND G.R., MULLEY J.C.;
Fibroblast growth factor homologous factor 2 (FHF2): gene structure,
expression and mapping to the Borjeson-Forssman-Lehmann syndrome
region in Xq26 delineated by a duplication breakpoint in a BFLS-like
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            79 YTSELFTPECKFKESVFENYY-VT-YSSMIYRQQQSGRGWYLGLNKEGEIMKGNHVKKNK 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LYSRQGYH-LQLQADGTIDGTKDEDSTYTLFNLIPVGLRVVAIQGVQTKLYLAMNSEGYL 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MUNIOZ -SANJOAN I., SIMANDL B.K., FALLON J.F., NATHANS J.;
"Expression of chicken fibroblast growth factor homologous factor (FHF)-1 and of differentially spliced isoforms of FHF-2 during development and involvement of FHF-2 in chicken limb development. 126:409-421(1999).

EMBL: AF108755; AAD21576.1;

EROUENCE 245 AA: 27605 MW; A8C17203 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4
                                                                                                                                                                                                                                                                                                                         Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ouery Match 18.1%; Score 234; DB 4; Length 192; Best Local Similarity 33.1%; Pred. No. 8.13e-29; Matches 43; Conservative 30; Mismatches 53; Indels
                                                                                                                                                                                                                         Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FMS. Genet. 104:56-63(1999).
EMBL: AF100144; AAD16401.1; -.
HSSP: P03968; 1AFC.
PROSITE; PS00247; HBGF_FGF; 1.
SEQUENCE 192 AA; 21580 MW; 9AD05A36 CRC32;
                                                                                                                                                 192 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             245 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-NOV-1999 (TrEMBLrel. 12, Created)
01-NOV-1999 (TrEMBLrel. 12, Last sequen
01-NOV-1999 (TrEMBLrel. 12, Last annota
FIBROBLAST GROWTH FACTOR 13 ISOFORM 15.
                                                                                                                                                                                                                                                                        FIBROBLAST GROWTH FACTOR 13 ISOFORM 1B
                                                                                                                                                                                                     Created)
                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                             01-MAY-1999 (TrEMBLrel. 10, 01-MAY-1999 (TrEMBLrel. 10, 01-NOV-1999 (TrEMBLrel. 12,
                                                                                                                                                 PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
194 PSSHFVPKPI 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         137 PAAHFLPKPL 146
                                            168 KAILFLPLPV 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     168 KAILFLPLPV 177
                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A. MEDLINE; 99065510.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 patient."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JT 14
Q9W6A2
Q9W6A2;
                                                                                                                       JT 13
095830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20
                                                                                                                  셤
                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RT RT RT BE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ద
```

```
4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ë,
                                                                                     73 LYSRQGYH-LQLQADGTIDGTKEEDSSYTLFNLIPVGLRVVAIQGVQTKLYLAMNSEGYL 131
                                                                                                           132 YTSEHFTPECKFKESIFENYY-VT-YSSMIYRQQQSGRGWYLGLNKEGEIMKGNHVKKNK 189
                                                                                                                                                                                                 61 YSSDVFTPECKFKESVFENYYVV--YSSTLYRQQESGRAWFLGLNKEGQ/MKGNRVKKTK 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2 LF-SQQGYFLQMHPDGTIDGTKDENSDYTLFNLIPVGLRVVAIQGVKASLJVAMNGEGYL 60
                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4; Gaps
                                                ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COULER F. PONTAROTI P., ROUBIN R., HARTUN'S H., GOLDFAF; M. BIRNBAUM D.;
J. MOLL EVOL. 0:0-0(0).
HASP, 270276; CA894240.1;
HSSP, P03968; JAFC.
PROSITE; PS00247; HSGE_FGF; 1.
NON_IER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammaiia;
Eutheria; Primates; Catarrhini; Hominidae; Pomo.
    Length 245;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 127;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 18.0%; Score 233; DB 4; Length 1?7
Best Local Similarity 31.8%; Pred. No. 1.35e-28;
Matches 41; Conservative 34; Mismatches 50; Indels
                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Last sequence uprate)
Last annotation appdate)
                      Pred. No. 8.13e-29;
31; Mismatches 53;
    DB 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              i. 1
127 127
127 AA; 14478 MW; 10E2842D CRC32;
                                                                                                                                                                                                                                                                                                                                                                                        127 AA
Score 234;
                                                                                                                                                                                                                                                                                                                                                                                                                           01-MAY-1997 (TrEMBLrel. 03, Created)
01-MAY-1997 (TrEMBLrel. 03, Last seque
01-NOV-1999 (TrEMBLrel. 12, Last annot
FIBROBLAST GROWTH FACTOR 12 (FRAGMENT)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Search completed: Tue Aug 29 16:16:54 2000 Job time : 116 secs.
                                                                                                                                                                                                                                                                                                                                                                                        PRT;
  Query Match . 18.1%;
Best Local Similarity 32.3%;
Matches 42; Conservative
                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Homo sapiens (Human)
                                                                                                                                                                                                                                                           190 PAAHFLPKPL 199
                                                                                                                                                                                                                                                                                     | ||| |:
168 KAILFLPLPV 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                168 KAILFLPLP 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PSSHFVPKP 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A
```

*>* 



Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

MPsrch\_pp protein protein database search, using Smith-Waterman algorithm Tue Aug 29 15:44:29 2000; MasPar time 7.13 Seconds 581.738 Million cell updates/sec :uo

Tabular output not generated.

Description: Perfect Score:

PAM 150 Gap 11 Scoring table:

Sequence:

188963 seqs, 23686106 residues Searched:

Minimum Match 0% Listing first 45 summaries Post-processing:

Database:

Mean 31.422; Variance 128.911; scale 0.244 a-genesed36 1:geneseqp Statistics:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

			æ (					
	NO.	Score	Match	Length	DB	ΩI	Description	Pred. No.
•		986	77.9	140	٦	R25914	Human_acidic fibroblas	2.28e-87
	7	986	77.9	140	П	R34497	Human acidic Fibroblas	2.28e-87
	ო	986	77.9	140	Н	P90068	Human acid fibroblast	2.28e-87
	4	986	77.9	140	-	R74647	Human recombinant aFGF	2.28e-87
	S	986	77.9	140	Н	W04806	Human acidic fibroblas	2.28e-87
	9	986	77.9	140	Н	P70995	Sequence of human prot	2.28e-87
	7	986	77.9	141	Н	R10527	Human acidic fibroblas	2.28e-87
	œ	986	77.9	151	-	R05789	Human aFGF encoded by	2.28e-87
	σ	986	77.9	154	-	W92283	Human beta-endothelial	2.28e-87
	10	986	77.9	154	Н	W04805	Human beta-endothelial	2.28e-87
	Ξ	986	77.9	154	-	W06816	Human endothelial cell	2.28e-87
	12	986	77.9	154	Н	W75414	Human beta-endothelial	2.28e-87
	13	986	77.9	155	Н	P94037	Human acidic fibroblas	2.28e-87
	14	986	77.9	155	ч	R70812	FGF-1.	2.28e-87
	15	986	77.9	155	Н	P70482	Sequence encoded by co	2.28e-87
	16	986	77.9	155	Н	R80776	Fibroblast growth fact	2.28e-87
	17	986	77.9	155	-	W53022	Fibroblast growth fact	2.28e-87
	18	986	77.9	155	-	W75711	growth	2.28e-87
	13	986	77.9	П	Н	W75415	Human endothelial cell	2.28e-87
	50	986	77.9	-	-	W92291	endothelial	2.28e-87
	21	986	77.9	П	П	R05785	O)	2.28e-87
	22	986	77.9	168	Н	W06818	Human endothelial cell	2.28e-87
	23	983	77.7	134	Н	W75413	Human alpha-endothelia	4.64e-87

A 640-87	4.64e-87	3.09e-86	6.30e-86	1.08e-84	1.08e-84	3.53e-84	3.53e-84	1.15e-83	1.98e-82	1.98e-82	6.87e-81	2.84e - 80	2.84e - 80	2.84e-80	2.84e-80	2.84e-80	2.84e-80	2.84e-80	3.83e-79	3.83e-79	1.58e-78
Himan alpha-endothelia		Fibroblast growth fact	Human endothelial cell	9 N-terminal residue d	aFGF mutein #2.	Recombinant human Alal	Human (Gly93) aFGF ana	Fibroblast growth fact	aFGF mutein #3.	12 N-terminal residue	Human acidic fibroblas	Bovine acidic fibrobla	Bovine recombinant aFG	Brain-derived acidic f	Bovine fibroblast grow	Bovine acidic Fibrobla	Human acidic fibroblas	Recombinant human muta	Recombinant bovine Ala	Bovine (Ala47,Gly93) a	Chimeric acid/basic fi
C8CC9W	W04807	W71383	W06817	R11327	R25418	R25570	W00561	R65935	R25419	R11328	R05315	P90069	R74648	R13030	R65934	R34496	R25915	P90074	R25569	W00560	W01747
-		Н	-	П	Н	Н	н	н	Н	Н	-1	н	ч	н	1	H	-	-	Н	7	Н
134	134	156	135	132	132	155	155	140	129	129	154	140	140	140	140	140	140	154	141	141	136
777	77.7	77.1	.8.91	75.9	75.9	75.5	75.5	75.1	74.2	74.2	73.0	72.5	72.5	72.5	72.5	72.5	72.5	72.5	71.6	71.6	71.1
983	983	975	972	096	960	955	955	920	938	938	923	917	917	917	917	917	917	917	906	906	006
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	36	40	41	42	43	44	45

#### ALIGNMENTS

R25914 standard; peptide; 140 AA. S26-JAN-1993 (first entry) Human acidic fibroblast growth factor. Viral infections; viruses; FGF; herpes simplex virus; HSV-1; HSV-2; herpes varicella; herpes zoster; cytomegalovirus; influenza; human immunodeficiency syncytial virus; Semliki Forest virus; HIV; human immunodeficiency virus; Moloney Sarcoma virus. BE-497341-A. G5-407341-A. G5-407341-A. G5-4071992; GB-002145. G5-407-1992; GB-000410. GFRRW ) FARMITALIA ERBA SRL CARLO. Battistini C, Carminati P, Garofano L, Mazue G, Ungheri D; Superistini C, Carminati P, Garofano Contains updr animated	Synchronization and year composition contains brist and sulphaced polysaccharide - for treating viral infections e.g. HSV-1 and -2, cytomegalovirus, HIV, influenza virus etc.  Disclosure; Page 4; 20pp; English.  This sequence represents acidic fibroblast growth factor (aFGF).  This sequence represents acidic fibroblast growth factor (aFGF).  This sequence represents acidic fibroblast growth factor (aFGF).  The sequence of the fibroblast growth factor (aFGF).  The sequence of the fibroblast growth factor (aFGF).  The second of the sequence of the sequen
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

0; Gaps Score 986; DB 1; Length 140; Pred. No. 2.28e-87; 1; Mismatches 2; Indels Query Match Best Local Similarity 97.8%; Matches 135; Conservative

ö

3 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 62 

g ò Q ò

123 THYGOKAILFLPLPVSSD 140

셤

ö

```
63 QYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPR 122
                                                                                        98 QYLAMDTDGILLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPR 157
                                                    QYLAMDIDGLLYGSQIPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPR 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 62
38 LLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            promote cell growth, to promote wound healing, for vascular grafts and blood vessel repair Claim 2: Column 30: 25pp: English.
Oligonucleotides were synthesized on the basis of the amino acid sequence of bovine acidic fibroblast growth factor (aFGF) and used to produce a synthetic gene (given in 088233) incorporating codons preferred by E. coli or mammalian cells, unique cloning sites, etc. This synthetic gene was mutagenized to obtain a gene encoding a human recombinant aFGF (R74647) having activity equivalent to the native protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   W04806 standard; Protein; 140 AA.
W04806,
39-DEC-1996 (first entry)
Human acidic fibroblast growth factor.
Endothelial cell growth factor; ECGF; blood vessel; regeneration; heparin-Sepharose affinity chromatography; probe; oligonucleotide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Human recombinant argr. 1. Acidic fibroblast growth factor; argr; vulnerary; anglogenesis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 986; DB 1; Length 140;
Pred. No. 2.28e-87;
1; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Thomas KA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Linemeyer DL,
                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                         R74647 standard; protein; 140
R74647;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Kelly LJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    123 THYGORAILFLPLPVSSD 140
                                                                                                                                                                                                     158 THYGOKAILFLPLPVSSD 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 77.9%;
Best Local Similarity 97.8%;
Matches 135; Conservative
                                                                                                                                                                       123 THYGQKAILFLPLPVSSD 140
                                                                                                                                                                                                                                                                                                                                                                                              25-SEP-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               30-MAY-1986; US-868473.
11-JUL-1986; US-884460.
04-JUN-1987; US-054991.
04-MAY-1988; US-190293.
08-FEB-1991; US-654397.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                24-DEC-1984; 685923.
24-DEC-1984; US-685923.
12-SEP-1985; US-774359.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (MERI ) MERCK & CO INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gimenez-Gallego G,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 95-138983/18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  04-MAY-1988; U8-FEB-1991; U25-SEP-1991; U25-SEP-1992; U25-SEP-1992; U25-SEP-1992; U3-MAY-1982; U3-MAY-1988; U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US5401832-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           28-MAR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mitogen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo
                                                       63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                       셤
                                                                                                                                                                       g
                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QYLAMDIDGLLYGSQIPNEECLFLERLEENHYNIYISKKHAEKNWFVGLKKNGSCKRGPR 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98 QYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPR 157
                                                                                                                                                                                                                                                                                                                                                                                                                                          FGF mutein prepn. useful for therapy of burn or thrombosis - by transformation of lymphocyte-contained animal cell by vector contg. DNA encoding FGF mutein black.

Disclosure; Page 3; 23pp; Japanese.

The invention covers muteins of FGF (esp. bFGF) which contain at least one plycosylation site. The muteins can be used to treat burns and thrombosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Disclosure, page 4; 36pp; English.
Amino acid sequence of human acidic fibroblast growth
factor (aFGF). The patent claims mutant forms which have
increased biological activity with(out) heparin, and promote
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mutant acidic fibroblast growth factor used for promoting repair of soft tissue, musculoskeletal tissue or vascular or nerve tissue and plasminogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 986; DB 1; Length 140
Pred. No. 2.28e-87;
1; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 986; DB 1; Length 140 Pred. No. 2.28e-87; 1; Mismatches 2; Indels
                                                                                                                                                                       06-AUG-1993 (first entry)
Human acidic Fibroblast Growth Factor.
aFGF; mutein; glycoslation site; glycoprotein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Human acid fibroblast growth factor
Human acidic fibroblast growth factor; mutant.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ¥
                                                                                     T
R34497 standard; protein; 140 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             77.9%;
larity 97.8%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Thomas Jnr KA, Linemeyer DL; WPI; 89-167092/23.
                                                                                                                                                                                                                                                                                                                                                                                              (TAKE ) TAKEDA CHEM IND LTD.
WPI; 93-139564/17.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         THYGOKAILFLPLPVSSD 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      THYGOKAILFLPLPVSSD 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 77.9%;
Best Local Similarity 97.8%;
Matches 135; Conservative
     158 THYGOKAILFLPLPVSSD 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JT 3
P90068 standard; protein;
P90068;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14-OCT-1988; 202306.
22-OCT-1987; EP-244431.
(MERI) Merck and Co.
                                                                                                                                                                                                                                                                                                                                         30-MAY-1991; 127435.
31-MAY-1990; JP-143388.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
Matches 135; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           140 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              140 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       activator prodn.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens
EP-319052-A.
                                                                                                                                                                                                                                                            Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cell growth.
                                                                                                                                             R34497;
06-AUG-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             14-JUN-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1-NOV-1989
                                                                                                                                                                                                                                                                                                                    30-MAR-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Seguence
```

Sequence

ပ္ရပ္ပင္တ

63

엄

ö

158

ò

g ŏ

RESULT ID P9 AC P9 DT 1-DE HU

ö

Gaps

.; 0

m

g

```
region
                                                                                                                                                                                                                                                                                                                                                                                                 region
                                                                                                                                                                                                                                                                                                                                                                                                                               region
                                                                                                                                                                                                                                                                                                                                                                                                                                                             region
                                                                                                                                                                                               158
                                                                                                      63
                                                                                                                                    98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           158
                                                                                                                                                                                                                                          RESULT SECTION OF SEC
                                             g
                                                                         ò
                                                                                                    g
                                                                                                                                    ò
                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                           Isolated, purified, biologically active bovine beta endothelial cell growth factor - useful to regenerate or treat damaged blood vessels bisclosure; Fig 8; 28pp; English.

Bovine beta-endothelial cell growth factor (beta-ECGF; W0399) having a mol.wt. of 20 kD can be purified at least 16300 fold from bovine brain using heparin-Sepharose affinity chromatography. ECGF is useful for, among other purposes, diagnostic applications and has potential in the treatment of damaged blood vessels or other endothelial cell-lined structures.

Human ECGF (137503) or fragments may be obtained using oligonucleotides (T37504 to T37509) whose design is based on the sequence of bovine alpha- and beta-ECGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     63 QYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPR 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPR 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mitogenic polypeptide isolated from human brain tissue - useful for increasing vascular effect in eg wound healing, or generating endothelial cell linings for vascular prostheses, etc. Claim 3: Page 1: 31pp: English.

The PF of the invention was obtd. from human brain tissue. It has a mol. wt. of 15,200-16,500 (pref. 15,616-16,056) and has a high affinity for heparinn. PFI and fragments are useful for promoting the growth of mesoderm-derived cells or neuroectoderm-derived cells and generating endothelial cell linings for vascular prostheses (all claimed). The polypeptides are useful for increasing vascularisation.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            18 LLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                          3 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 62
                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      P70995;
13-20N-1991 (first entry)
Sequence of human proteinaceous factor (PF1) with mitogenic ac
Cell growth promoter; mitogen; vascularisation; wound healing
                                                                                                                                                                                                                                                                                                                                                                                              Score 986; DB 1; Length 140;
Pred. No. 2.28e-87;
1; Mismatches 2; Indels
                                                       18-DEC-1987; US-134499.
29-APR-1991; US-693079.
27-NOV-1991; US-739859.
03-NOV-1994; US-334884.
(RHON ) RHONE POULENC RORER PHARM INC.
BUTGESS W, Maciag T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      n 6
P70995 standard; protein; 140 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Lobb RR, Harper JW, Strydom DJ; WPI; 87-285995/41.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /label- Asp-OH
                                                                                                                                                                                                                                                                                                                                                                                              Query Match 77.9%;
Best Local Similarity 97.8%;
Matches 135; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                THYGOKAILFLPLPVSSD 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               158 THYGOKAILFLPLPVSSD 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            14-OCT-1987.
06-MAR-1987; 301969.
07-MAR-1986; US-838096.
(HARD ) HARVARD COLLEGE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_difference 140
                                            03-MAR-1986; US-83
                                                                                                                                                                N-PSDB; T37503
                         03-MAR-1986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EP-241136-A.
                                                                                                                                                                                                                                                                                                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                123
                                                                                                                                                                                                                                                                                                                  នឧឧឧ
å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Anti-acid antibody, for cancer diagnosis, etc. - is obtd. by using complex of partial peptide(s) of acid fibroblast growth tactor and protein as antigen.

Bachosure, Fig 1; 19pp, Japanese.

The was deduced from a gene used to produce recombinant aFGF.

The was deduced from the protein, esp. from A-D can be used to as antigens to produce anti-aFGF antibodies. The peptides must comprise 8-10 continuous AAs from A or B (claims 5 and 6 resp.),

7-10 continuous AAs from C (claim 7), or 8-9 continuous AAs from D (claim 8). The Abs can be used for immunochemically measuring aFGF, and for purifying aFGF. They are useful as reagents in the diagnosis of various cancers or diseases of the CNS. Purified aFGF has wound healing and nerve cell proliferating properties.
                                                                                                                                                                                     QYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPR 122
                                                                                                                                                                                                                 64 QYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPR 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                62
                                                                                                          18 LLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            38 LLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 97
                              0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVXIKSTETG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 141;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 77.9%; Score 986; DB 1; Length 141 Best Local Similarity 97.8%; Pred. No. 2.28e-87; Matches 135; Conservative 1; Mismatches 2; Indels
                              Indels
  Pred. No. 2.28e-87;
1; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15-APR-1991 (first entry)
Human acidic fibroblast growth factor gene.
aFGF; antibody; antigen; cancer; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                         R10527 standard; Protein; 141 AA. R10527;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (TAKE ) TAKEDA CHEMICAL IND KK. WPI; 91-040150/06.
                                                                                                                                                                                                                                                                                               123 THYGOKAILFLPLPVSSD 140
                                                                                                                                                                                                                                                                                                                           Best Local Similarity 97.8%;
Matches 135; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           124 THYGOKAILFLPLPVSSD 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2. .12
/label= A
56. .67
/label= B
/label= C
132. .141
/label= C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       03-JUL-1989; 172542.
04-JUL-1988; JP-166275.
03-JUL-1989; JP-172542.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-PSDB; Q10399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        J02306996-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
```

**Query Match** 

```
Drohan WN, Jaye M, Maciag T;
   Burgess W, Drohan
WPI; 99-069734/06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ha.
Local Sim.
135;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Seguence
                                                                                                                                                                                                                                                                                                                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      W04805;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITE OF THE OF T
   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Claim 2; Fig 3a; 120m; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 68 QYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPR 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20-APR-1999 (first entry)
Human beta-endothelial cell growth factor (ECGF) protein sequence.
Endothelial cell growth factor; ECGF; cleavable; recombinant; repair;
regenerate; blood vessel; endothelial cell; human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIOLQLSAESVGEVYIKSTETG 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       38 LLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               incorporates useful restriction sites at frequent intervals facilitate cassette mutagenesis of specified regions.
                                                                                                                                                                                                                                                            "sites corresp. to two stop codons of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 151;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 986; DB 1; Length 151;
Pred. No. 2.28e-87;
1; Mismatches 2; Indels
                                                                            Human aFGF encoded by synthetic gene.
Acidic fibroblast growth factor; aFGF; thrombogenesis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gene encoding human acidic fibroblast growth factor
                                                                                                                                                                                                   Location/Qualifiers 146. .147
                                                                                                                                                                                                                                                                                        the DNA sequence"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 T
W92283 standard; protein; 154 AA.
standard; Protein; 151 AA
                                                                                                                                                                                                                                                                                                                                                                                                   08-AUG-1988; GB-018775.
(BRBI-) Brit Bio-Tech Ltd.
Davies JA, Johnson ID;
WPI: 90-109882/15.
N-PSDB, Q03873.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     128 THYGQKAILFLPLPVSSD 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   77.98;
97.88;
                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 77.9%;
Best Local Similarity 97.8%;
Matches 135; Conservative
                                                                                                                                         atherosclerosis; tumors.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-743261.
                                                                                                                                                                                                                                                               /note-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29-APR-1991; US-693079
27-NOV-1991; US-799859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -NOV-1994; US-334884
-JUN-1995; US-472964
-APR-1997; US-840088
                                                                                                                                                                                                                                                                                                                                                  11-APR-1990.
08-AUG-1988; 018775.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            840088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         151 AA;
                                                                                                                                                                                                                              misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             atherosclerosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11-APR-1997;
04-NOV-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      03-MAR-1986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              11-APR-1997;
                                                   22-AUG-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15-DEC-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          03-NOV-1994
                                                                                                                                                                          Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           W92283;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   x
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
```

```
Why according a cleavable signal peptide and an endothelial cell growth factor ruseful for producing recombinant endothelial cell growth factor roteins claim 1, Column 16, 23pp; English.

This represents the amino acid sequence of human beta-endothelial cell growth factor (ECGF). The invention is directed to DNA encoding alpha or beta-ECGF and plasmids comprising the DNA sequences. The DNA encodes a cleavable signal peptide and an ECGF, where removal of the signal peptide yields a mature form of the ECGF. The DNA is used to produce recombinant ECGF proteins, which can be used in treatments to repair or regenerate blood vessels or other structures lined with endothelial cells.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                isolated, purified, biologically active bovine beta endothelial cell growth factor - useful to regenerate or treat damaged blood vessels bisclosure; Fig 8; 28pp; English and the control of 20 kpp; English and the control of 20 kp can be purified at least 16300 fold from bovine brain using heparin-Sepharose affinity chromatography. ECGF is useful for, among other purposes, diagnostic applications and has potential in the treatment of damaged blood vessels or other endothelial cell-lined structures.

Human ECGF (137503) or fragments may be obtained using oligonucleotides (737504 to 737509) whose design is based on the sequence of bovine alpha- and beta-ECGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 77 QYLAMDIDGLLYGSQIPNEECLFLERLEENHYNIYISKKHAEKNWFVGLKKNGSCKRGPR 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         98 QYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPR 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         29-DEC-1996 (first entry)
Human beta-endochelial cell growth factor.
Endothelial cell growth factor; ECGF; blood vessel; regeneration; heparin-Sepharose affinity chromatography; probe; oligonucleotide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             38 LLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            17 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            77.9%; Score 986; DB 1; Length 154 larity 97.8%; Pred. No. 2.28e-87; Conservative 1; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 986; DB 1;
Pred. No. 2.28e-87;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (RHON ) RHONE POULENC RORER PHARM INC. BUIGGES W, Maciag T; WPI; 96-412132/41. N-PSDB; T37503.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        W04805 standard; Protein; 154 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FGF; fibroblast growth factor. Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  158 THYGOKAILFLPLPVSSD 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 77.9%;
Best Local Similarity 97.8%;
Matches 135; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              137 THYGQKAILFLPLPVSSD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                03-SEP-1996.
03-MAR-1986; 835594.
03-MAR-1986; US-835594.
18-DEC-1987; US-134499.
29-APR-1991; US-693079.
27-NOV-1994; US-334884.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                  154 AA;
```

ö

(RHON ) RHONE-POULENC RORER PHARM INC

S

38

86 137

ç

g

ò

AC PE

11

ద

```
cell growth factor promoting meaning containing care accordance represents the amino acid sequence of the mature human beta-endothelial cell growth factor (b-ECGF). This amino acid sequence 10 N-terminal amino acids. The sequence was isolated from a human brain stem cell cDNA library using a probe designed based on fragments of the bovine ECGF (see W75416-W75418). The ECGF protein can be used in compositions for promoting wound healing. ECGF is also used to grow sequence 154 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPR 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QYLAMDTDGLLYGSQTPNEECLFLEENHYNTYISKKHAEKNWFVG:KKNGSCKRGPR 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               18 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESV3EVYIKSTETG 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (RHON ) RHONE-POULENC RORER PHARM INC.
Burgess W, Drohan WN, Jaye M, Maciag T;
WPI; 98-594032/50.
Compositions for promoting wound healing - containing endothelial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 986; DB 1; Length 154
Pred. No. 2.28e-87;
1; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Recombinant DNF. encoding new fibroblast growth factor analogues - useful eg for accelerating wound healing and to control neovascularisation.
Disclosure; p; English.
See also P94038.
Sequence 155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 986; DB 1; Length 155
Pred. No. 2.28e-87;
1; Mismatches 2; Inde.s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                25-JUN-1990 (first entry)
Human acidic fibroblast growth factor.
Acidic fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (BIOT-) Biotechn Res Assoc.
Fiddes JC, Abraham JA, Protter A;
WPI; 89-009785/02.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ź
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                P94037 standard; protein; 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    158 THYGQKAILFLPLPVSSD 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity 97.8%;
Matches 135; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 77.9%;
Best Local Similarity 97.8%;
Matches 135; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 THYGOKAILFLPLPVSSD 154
                                       US-835594.
US-134499.
US-693079.
US-799859.
US-334884.
US-472964.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   06-JUL-1988; 306158.
07-JUL-1987; US-070797.
                                                                                               27-NOV-1991; U
03-NOV-1994; U
07-JUN-1995; U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N-PSDB; N9308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens.
EP-298723-A.
                                                         18-DEC-1987;
29-APR-1991;
                                         03-MAR-1986;
                       04-NOV-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11-JAN-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  P94037;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
   ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                         136
                                                                             157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPR 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Claim 1, Column 16, 22pp; English.

Human recombinant endothelial cell growth factors (ECGF) beta (W06816) and alpha (W06817) differ only at their v-terminal ends. They can be produced in transformed prokaryotic or enkaryotic host cells using DNA sequences (T45983 and T45984, respectively) derived from the complete human ECGF cDNA (T45885). Large quantities of the ECGFs are produced by culturing the host cells and recovering the proteins. ECGFs have utility in the growth and amplification of endothelial cells in culture. They can potentially be used to treat damaged blood vessels and other endothelial cell-lined Sequence 154 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                 LLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               07-JUN-1995; US-472964.

(RHON ) RHONE POLLENC RORER PHARM INC.

Burgess W. Drohan WN, Jaye M, Maciag T;

WPI; 96-505421/50.

N-PSDB; T45983.

Recombinant human endothelial cell growth factors - for treating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        stem; probe;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      77.9%; Score 986; DB 1; Length 154; 97.8%; Pred. No. 2.28e-87; ative 1; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        02-MAR-1999 (first entry)
Human beta-endothelial cell growth factor.
Human; endothelial cell growth factor; ECGF; brain stem; hybridisation; bovine; wound healing; prosthetic device.
                                                                                                                                                                                                                                                                                      Human endothelial cell growth factor-beta.
Endothelial cell growth factor-beta; ECGF-beta.
                                                                                                                                                                                                                               W06816 standard; Protein; 154 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      W75414 standard; protein; 154 AA W75414;
                                                                                                               THYGQKAILFLPLPVSSD 154
                                                                                                                                   158 THYGQKAILFLPLPVSSD 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       THYGQKAILFLPLPVSSD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             damaged blood vessels, etc.
                                                                                                                                                                                                                                                                    17-MAR-1997 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          est Local Similarity 97.8%;
atches 135; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                  03-MAR-1986; US-835594.
18-DEC-1987; US-134499.
29-APR-1991; US-693079.
27-NOV-1991; US-799859.
03-NOV-1994; US-334884.
07-JUN-1995; US-472964.
                                                                                                                                                                                                                                                                                                                                                                                03-MAR-1986; 835594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens
US5827826-A.
                                                                                                                                                                                                                                                                                                                                                                  05-NOV-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                27-OCT-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                  W06816;
```

11 98 137 158

셤 ò 셤 ò g

ö

RESULT
ID W7
AC W7
DT O2
DE HI KW H KW H KW PN U U
PN U U

ö

Gaps

ö

Length 154;

ö

Gaps

ö

Length 155;

```
Search completed: Tue Aug 29 15:45:03 2000 Job time : 34 secs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   158 THYGOKAILFLPLPVSSD 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                   BIOTECH
     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                      FGF-1. Fibroblast growth factor; cytotoxic conjugate; fusion protein; saporin; cytostatic; tumor; diabetes; rheumatoid arthritis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    98 QYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPR 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Disclosure; Page 108-109; 128pp; English.

Novel fusion proteins comprise FGF linked to saporin. FGF-1 to -9 may be used, pref. FGF-1 (R70812), FGF-5 (R70813), FGF-7 (R70814) or FGF-8 (R70815) muteins, in which at least 1 Cys residue is replaced by conservative Ser substitutions. The fusion proteins are potent cytocidal agents to cells bearing the FGF receptor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QYLAMDIDGLLYGSQIPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPR 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               New monogenous preparations of cytotoxic conjugates and DNA -contain fibroblast growth factors and cytotoxic agents for treating FGF conditions such as tumours, diabetes and rheumatoid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence encoded by complete cDNA sequence of human endothelial cell growth factor (ECGF). 
Endothelial cell regeneration; blood vessel regeneration.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 986; DB 1; Length 155;
Pred. No. 2.28e-87;
1; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                       /note= "Cys may be replaced by Ser"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note= "Cys may be replaced by Ser"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (PRIZ-) PRIZM PHARM INC.
(WHIT-) WHITIIER INST DIABETES & ENDOCRINOLOGY.
Baird AJ, Lappi DA, Sosnowski BA;
                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /label= Acidic FGF
22. 155
/label= Alpha ECGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2. .15
/label= Beta ECGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        P70482 standard; Protein; 155 AA.
P70482;
                                                                                                                                                                       T 14
R70812 standard; protein; 155 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            / Match
Local Similarity 97.8%;
nes 135; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           138 THYGQKAILFLPLPVSSD 155
                                                                              01-SEP-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        13-MAY-1991 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   02-AUG-1993; US-099924.
29-OCT-1993; US-145829.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              27-JUL-1994; U08511
                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_difference 132
                                                                                                                                                                                                                                                                                                                                                                                                misc_difference 31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 95-082038
                                                                                                                                                                                                                                                                                                                                                  Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO9503831-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           arthritis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein
                                                                                                                                                                                                                        R70812;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Key
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                   ET THE SET TO SE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
     ò
                                             셤
                                                                                                à
```

```
98 QYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPR 157
                                                                                                                                                                                                                                                                                                                                                   Name and other land call growth factor - produced by recombinant DNA techniques, useful for wound healing Example. Fig 8: 43pp; English.

Example. Fig 8: 43pp; English.

To screen the human brain stem CDNA library for clones contg. ECGF inserts, a specific oligonucleotide was designed. This coligonucleotide was based upon a partial AA sequence analysis of the amino terminus of ECGF (see F70480 and P70481). Fig 3s sets footh for comparison the AA sequence of cyanogen bromide-cleaved bovine alpha and beta ECGF (P70834). The two clones that were isolated, ECGF clones 1 and 29, were analysed in further detail. The nucleotide sequence of these clones and the AA sequence deduced from the nucleic acid sequence is shown in Fig 8 (see W70788 and P70482).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            78 QYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPR 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  18 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               38 LIDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 986; DB 1; Length 155
Pred. No. 2.28e-87;
1; Mismatches 2; Indels
                                                                                                                                                                                                                                                      Jaye M, Burgess W, Maciag T, Drohan W;
WPI; 87-264128/37.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ouery Match
Best Local Similarity 97.8%;
Matches 135; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          138 THYGOKAILFLPLPVSSD 155
                                                                                                    (MELO-) MELOY LAB INC.
(RORE ) RORER BIOTECHN INC.
(RORE-) RORER.
02-MAR-1987; U00425.
03-MAR-1986; US-835594.
26-MAR-1987; ES-000812.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         155 AA;
                                                                                                                                                                                                                                                                                                                             N-PSDB; N70788
```

ô

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

MPsrch\_pp protein - protein database search, using Smith-Waterman algorithm Tue Aug 29 15:43:38 2000; MasPar time 11.55 Seconds 714.738 Million cell updates/sec : 0

abular output not generated.

>us-09-121-017b-3 (1<del>-175) Iron USO9</del>121017B.pep 1265 1 MSRGAGRVQGTLQALVFLGV......PRTHYGQKALLFLPLPVSSD 175 Title: Description: Perfect Score:

Sequence:

PAM 150 Gap 11 Scoring table:

142080 seqs, 47172406 residues Searched:

Post-processing:

Minimum Match 0% Listing first 45 summaries

pir64 T:pir1 2:pir2 3:pir3 4:pir4 Database:

Mean 43.514; Variance 77.023; scale 0.565

Statistics:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

,		æ					
Result No.	Score	Query Match	Query Match Length	DB	QI	Description	Pred. No.
	986	77.9	155	-	A33665	acidic fibroblast gro	6.25e-196
2	696	9.9/	155	Н	A60721	_ftbroblast	ø.
m	996	76.4	155	7	D37360	acidic fibroblast gro	3.12e-19
4	996	76.4	155	~	S04147	fibroblast	۳.
S	955	75.5	152	7	JH0476		1.19e-188
9	917	72.5	155	Н	GKBOA	acidic fibroblast gro	9.63e-180
7	916	72.4	155	~	A60130		ä
œ	906	71.6	155	~	JW0055		3.62e-17
σ	530	41.9	189	7	A48834	basic fibroblast grow	2.16e-90
10	524	41.4	157	-	GKBOB	basic fibroblast grow	4
11	517	40.9	146	-	S00185		4
12	517	40.9		~	A32398	basic fibroblast grow	1.87e-87
13	513	40.6		~	A31674	basic fibroblast grow	1.49e-86
14	508	40.2		7	C37360	basic fibroblast grow	2.00e-85
15	505	39.9		~	S31622	-	e,
16	493	39.0		H	A40117	basic fibroblast grow	4.73e-82
17	473	37.4		7	146711		ä
18	350	27.7	208	~	A48137	fibroblast growth fac	ä
19	350	27.7		~	S66486	fibroblast growth fac	H
20	332	26.2		~	JC5941	fibroblast growth fac	1.40e-46
. 21	327	25.8	207	~	JC5940	fibroblast growth fac	1.65e-45
22	303	24.0	194	~	S49501	keratinocyte growth f	2.14e-40
23	300	23.7	194	-	A36301	fibroblast growth fac	9.25e-40

6.47e-39	1.71e-38	1.93e-37	9.17e-36	1.48e-35	1.02e-34	2.65e-34	2.65e-34	2.90e-33	2.90e-33	7.55e-33	7.55e-33	8.78e-31	8.78e-31	9.35e-30	6.16e-29	6.68e-27	1.70e-26	1.70e-26	2.71e-26	4.31e-26	2.76e-25
keratinocyte growth f	fibroblast growth fac	embryonic fibroblast	fibroblast growth fac	fibroblast growth fac	embryonic Fibroblast	transforming protein	fibroblast growth fac	fibroblast growth fac	transforming protein	fibroblast growth fac	HST protein - bovine	fibroblast growth fac	fibroblast growth fac	FGF-3 - chicken	fibroblast growth fac	transforming protein	basic fibroblast grow	transforming protein	transforming protein	keratinocyte growth f	fibroblast growth fac
148610	S26049	S23595	150710	S14192	S54407	A36207	S68144	JC4627	TVHUF5	JH0708	JC4268	JG0184	TVHUHS	150588	S20102	S39582	A32484	TVMSHS	TVMST2	B46289	S04742
~	~	7	~	7	~	~	~	7	н	~	~	~	-	N	~	Н	~	н	-	~	Н
194	194	187	194	208	192	264	566	256	267	9	206	168	206	220	208	237	125	202	245	97	239
23.4	23.2	22.8	22.2	22.1	21.3	21.7	21.7	21.3	21.3	21.1	21.1	20.3	20.3	19.9	19.6	18.8	18.7	18.7.	18.0	18.5	18.2
296	294	289	281	280	276	274	274	569	569	267	267	257	257	252	248	238	236	236	235	234	230
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

## ALIGNMENTS

```
CLASSIFICATION
                                                   #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #accession
                                                                                                                                                                                                                                                                                #accession
                                                                                                                                                                                                                                                                                                                                                                                                                 #journal
#title
                                                                                                                                                               #journal
#title
                                                                                                                                            #authors
                                                                                                                                                                                                                                                                                                                                                                                              #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       86
                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              16-155
                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KEYWORDS
FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENETICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##residues 1.40 ##label RES
##cross-references GB:M60515; NID:9178226; PIDN:AAA51672.1; PID:9553170;
GB:M60516; NID:9178232; PID:9553171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #authors Payson, R.A.; Canatan, H.; Chotani, M.A.; Wang, W.P.; Harris,
S.E.; Myers, R.L.; Chiu, I.M.
#journal Nucleic Acids Res. (1993) 21:489-495
#title Cloning of two novel forms of human acidic fibroblast growth
factor (aRGF) mRNA.
#cross-references MUID:93181239
                                                                                                                                                                                                                                                                                                                                                                                                        #authors Yu, Y.L.; Kha, H.; Golden, J.A.; Migchielsen, A.A.J.; Goetzl, E.J.; Burck, C.W.
#journal J. Exp. Med. (1992) 175:1073-1080
#title An acidic fibroblast growth factor protein generated by alternate splicing acts like an antagonist.
#cross-references MUD:92202857
#accession JH0707
                                                                                                                                                           ##residues 1.155 ##label CHI
##cross-references EMBL:X51943; NID:932435; PIDN:CAA36206.1; PID:932436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #authors Chiu, I.M.; Wang, W.P.; Lehtoma, K.
#journal Oncogene (1990) 5:755-762
#title Alternative splicing generates two forms of mRNA coding for human heparin-binding growth factor 1.
#cross-references MUID:90265618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #authors Crumley, G.; Dionne, C.A.; Jaye, M.
#journal Biochem. Biophys. Res. Commun. (1990) 171:7-13
#title The gene for human acidic fibroblast growth factor encodes
two upstream exons alternatively spliced to the first
coding exon.
#cross_references_MUID:90365758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A. Biochem. Biophys. Res. Commun. (1986) 138:611-617
The complete amino acid sequence of human brain-derived
                                                                                                                                                                                                                                                                                       #journal Science (1986) 233:541-545
#title Human endothelial cell growth factor: cloning, nucleotide sequence, and chromosome localization.
#cross-references MUID:86261805
                                                                                                                                                                                                                            Jaye, M.; Howk, R.; Burgess, W.; Ricca, G.A.; Chiu, I.M.; Ravera, M.W.; O'Brien, S.J.; Modl, W.S.; Maclag, T.; Drohan, W.N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #authors Harper, J.W.; Strydom, D.J.; Lobb, R.R. #journal Blochemistry (1986) 25:4097-4103 #cross references MUID:86296647 #accession ##molecule_type protein ##residues 16-155 ##label HAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##status translation not shown
##molecule_type mRNA
##residues
##cross-references GB:L01487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type mRNA
##residues 1-58 ##label PAY
##cross-references GB:L01485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##molecule_type mRNA
                                                                                                                                     ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A23553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A24820
                                                                                                                                                                                                                                                                                                                                                                                          A24662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S35535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S35536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   I39413
                                                                                                                   A43804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #accession
                                                                                                                   #accession
                                                                                                                                                                                                                                                                                                                                                                                            #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #authors
#journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                            REFERENCE
```

```
#authors Gautschl-Sova, P.; Muller, T.; Bohlen, P.
#journal Biochem. Biophys. Res. Commun. (1986) 140:874-880
#title Amino acid sequence of human acidic fibroblast growth factor.
#cross-references MUID:87048871
#accession A26386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #product fibroblast growth factor 1 #status experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Chavan, A.J.; Haley, B.E.; Volkin, D.B.; Marfia, K.E.; Verticelli, A.M.; Bruner, M.W.; Draper, J.P.; Burke, C.J.; Middaugh, C.R.
Biochemistry (1994) 33:7193-7202
Interaction of nucleotides with acidic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          dession
##molecule_type protein
##residues 16-30,'X',32-38;73-75,'X',77-97,'X',99-101;128-131,'X',
##residues 133-140,'X',142-152 ##label CHA
                                                                                                                                                                                     Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A. Blochem. Blophys. Res. Commun. (1986) 135:541-548 Human brain-derived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitogenic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     78 QYLAMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPR 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gautschi, P.; Frater-Schroder, M.; Bohlen, P. FEBS Lett. (1986) 204:203-207 Partial molecular characterization of endothelial cell mitogens from human brain: acidic and basic fibroblast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #label MAT\
    #blnding_site carbohydrate (Asn) (covalent) #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      18 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     38 LLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYKSTETG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                *superfamily fibroblast growth factor alternative splicing; growth factor; heparin binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #length 155 #molecular-weight 17460 #checksum 9243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 77.9%; Score 986; DB 1; Length 155; Best Local Similarity 97.8%; Pred. No. 6.25e-196; Matches 135; Conservative 1; Mismatches 2; Indels
acidic fibroblast growth factor.
#cross-references MUID:86295741
#accession A24820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##nolecule_type protein
##residues 16-30,'X',32-49 ##label GAU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #gene GDB:FGF1; FGFA
##cross-references GDB:119909; OMIM:131220
#map_position 5q13.2
#introns 57/1; 91/3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##molecule_type protein
##residues 16-155 ##label GA2
                                                                                     ##molecule_type protein
##residues 16-155 ##label GIM
                                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type protein
##residues 16-47 ##label GI2
##experimental_source brain
BNCE A91364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #cross-references MUID:94271773
#accession A53639
                                                                                                                                                                                                                                                                                                                                     #cross-references MUID:86186784
#accession A24243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         growth factors. #cross-references MUID:86275260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##experimental_source brain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               absent
                                                                                                                                                                                                                                                                                                               activities
                                                                                                                                                            A90122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A24301
```

ö

()

m

```
##molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
nes 130; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S04147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CLASSIFICATION
KEYWORDS
SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ALTERNATE_NAMES
ORGANISM
                                                                                                                                            CLASSIFICATION
SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #authors
#journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                               #introns
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                         141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                               #gene
                                                                                           GENETICS
                                              COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                        品
                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                       임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          සු
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                      A60721 #type complete
acidic fibroblast growth factor - golden hamster
heparin binding growth factor 1
#formal_name Mesocricetus auratus #common_name golden hamster
10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Dev. Biol. (1990) 138:454-463
Isolation of cDNAs encoding four mouse FGF family members and
characterization of their expression patterns during
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##residues 1-155 ##label HEB
##cross-references GB:M30641; NID:q193284; PIDN:AAA37618.1; PID:q309236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                         aFGF/HGBF-I gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           O.; Martin,
                                                                                                                                                                                                                       #authors Hall, J.A.; Harris, M.A.; Malark, M.; Mansson, P.E.; Zhou, H.; Harris, S.E.
#journal J. Call. Biochem. (1990) 43:17-26
#title Characterization of the hamster DDT-1 cell aFGF/HGBF-I generate CDNA and its modulation by steroids.
#ccession A60721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               78 QYLAMDIDGLLYGSQIPNEECLFLERLEENHYNIYISKKHAEKNWFVGLKKNGSCKRGPR 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                98 QYLAMDTDGLLYGSQTPNEECLFLEENLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPR 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  18 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETG 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #formal_name Mus musculus #common_name house mouse
17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change
16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Fauthors Madiai, F.; Hackshaw, K.V.; Chiu, I.M.
Gone (1996) 179:231-236
#title Cloning and Characterization of the mouse Fgf-1 gene-
ecross-references WUID:97128312
                                                                                                                                                                                                                                                                                                                                                                                                     growth factor; heparin binding
#length 155 #molecular-weight 17403 #checksum 9573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hebert, J.M.; Basilico, C.; Goldfarb, M.; Haub,
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 969; DB 1; Length 155;
Pred. No. 6.16e-192;
                                                                                                                                                                                                                                                                                                                                       not compared with conceptual translation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              D37360 #type complete
acidic fibroblast growth factor - mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4;
                                                                                                                                                                                                                                                                                                                                                                   1-155 ##label HAL
#superfamily fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          embryogenesis.
#cross-references MUID:90201563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##molecule_type mRNA
##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                    76.6%;
ilarity 95.7%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    preliminary
138 THYGOKAILFLPLPVSSD 155
                138 THYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              158 THYGQKAILFLPLPVSSD 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          D37360; JC5231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            aFGF; FGF-
                                                                                                                                                                                                                                                                                                                                                      ##molecule_type DNA
##residues 1-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Local Similarity
Matches 132; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           D37360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          D37360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JC5231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A37360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
TERNATE_NAMES
;ANISM
                                                                                                                         ALTERNATE_NAMES
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                    CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                         ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | journal
                                                                                                                                                                                       ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSIONS
                            158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                    SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
ENTRY
                                                                            RESULT
셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
```

```
###caidues 1.155 ##label GOO ##caidues 1.155 ##label GOO ##cross-references EMBL.X14212; NID:956351; PIDN:CAA32448.1; PID:956352 FICATION #superfamily fibroblast growth factor #scror; hepsrin blading growth factor; hepsrin blading #length 155 #molecular-weight 17417 #checksum 9341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Goodrich, S.P.; Yan, G.C.; Bahrenburg, K.; Mansson, P.E.
Nucleic Acids Res. (1989) 17:2867
The nucleotide sequence of rat heparin binding growth factor
                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JHC476 *type fragment acidic fibroblast growth factor - pig (fragment) *formal_name Sus scrofa domestica *common_name domestic pig 31-Mar-1992 *sequence_revision 31-Mar-1992 *text_change
                                                                                                                                                                                                                                                                                                                                                                                  AMDTEGLLYGSQTPNEECLFLERLEENHYNTYTSKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AMDIEGLLYGSQIPNEECLFLERLEENHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##residues 1-155 ##label MAD
##cross-references GB:U36456
T This protein is an inducer of neovascularization in anglogenic
disease including atherosclerosis, cancer and inflammatory
                                                                                                                                                                                                                                                                                                                                                         21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQYL 80
                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S04147 *type complete acidic fibroblast growth factor 1 - rat heparin-binding growth factor 1 heparin-binding growth factor 1 *formal_name Rattus norvegicus *common_name Norway rat 28-Feb-1990 *sequence_revision 28-Feb-1990 *text_change
                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                  #checksum
                                                                                                                                                                                                                                                                 Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 155;
                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                         Fgf-1
57/1; 91/3
$superfamily fibroblast growth factor
#length 155 #molecular-weight 17417
                                                                                                                                                                                                                                                            Score 966; DB 2; Le
Pred. No. 3.12e-191;
3; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 966; DB 2; Lk
Pred. No. 3.12e-191;
3; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 (HBGF-1).
*cross-references MUID:89240051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            76.4%; ; ilarity 96.3%; i
                                                                                                                                                                                                                                                               Query Match 76.4%;
Best Local Similarity 96.3%;
Matches 130; Conservative
                                                                                             autoimmune disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            161 GQKAILFLPLPVSSD 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ENTRY
TITLE
ORGANISM
DATE
```

```
#cross-references MUID:87016918
                                                                                                                                                                                                 #authors
#submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #accession
                                                                                                                                                                                                                                        *accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                           #accession
                                                                                                #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #authors
                    #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #journal
                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #title
                                       #title
                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Halley, C.; Courtois, Y.; Laurent, M.
Nucleic Acids Res. (1988) 16:10913
Nucleotide sequence of bovine acidic fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Renaud, F.; Desset, S.; Bugra, K.; Halley, C.; Philippe, J.M.; Courtols, Y.; Laurent, M. Blochem. Blophys. Res. Commun. (1992) 184:945-952 Heterogeneity of 3' untranslated region of bovine acidic FGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alterio, J.; Halley, C.; Brou, C.; Soussi, T.; Courtois, Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            acidic fibroblast growth factor precursor - bovine acidic fibroblast growth factor II; heparin-binding growth factor II; heparin-binding growth factor I; prostatropin #formal_name Bos primigenius taurus #common_name cattle 13-Aug-1986_*sequence_revision 03-Feb-1994 #text_change
                                                                                                                                                                                          ##residues 1-152 ##label SCH
##cross-references EMBL:X60317; NID:g1873; PIDN:CAA42869.1; PID:g1874
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JH0613; S02102; S02661; S22065; B24663; A94281; S03953; A91010; A24477; B25043; C25043; A25043; A24539; A60884; A37892; B37892; A61198; I46024; A34477; A01385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QYLAMDISGLLYGSQIPSEECLFLERLEENHYNIYISKKHAEKNWFVGLKKNGSCKRGPR 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##molecule_type mRNA
##residues 1-155 ##label HAL
##cross-references EMBL:x13221; NID:g347; PIDN:CAA31610.1; PID:g348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            the hydrophobic core residues are packed around the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                          internal symmetry axis
protein belongs to the fibroblast growth factor family #superfamily fibroblast growth factor
growth factor; heparin binding
                                           #journal Biochem. Biophys. Res. Commun. (1991) 180:853-859
#title Amplification and sequencing of mRNA encoding acidic floroblast growth factor (aFGF) from porcine heart.
#accession TOTAL
                                                                                                                                                                                                                                                                                                                                                                                                #binding_site heparin (Lys) #status predicted
#length 152 #checksum 1124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 152;
                                                                                                                                                                                                                                                                                                                                                                             #region nuclear location signal\
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 955; DB 2; Lv
Pred. No. 1.19e-188;
2; Mismatches 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##molecule_type DNA
##residues 58-155 ##label REN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            fcross-references MUID:89083506
taccession S02102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #cross-references MUID:92246990
                                                                                                                                                                                                                                     ##experimental_source heart
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 75.5%;
Best Local Similarity 95.6%;
Matches 129; Conservative
                    JH0476; S20072
16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   18-Jun-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 transcripts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    THYGOKAILFLPLPV 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               THYGOKAILFLPLPV 152
                                                                                                                                                                        ##molecule_type mRNA
                                       JH0476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S02102
                                                                                                                                                                                                                                                                                               This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                    CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   *accession
                                                                                                                                                          #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #authors
#journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #journal
                  ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               138
                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                        FEATURE
22-28
133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                      KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                    SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
```

```
#authors Abraham, J.A.; Mergia, A.; Whang, J.L.; Tumolo, A.; Friedman,
J.; Hjerrild, K.A.; Gospodarowicz, D.; Fiddes, J.C.
#journal Science (1986) 233:545-548
#title Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fibroblast growth factor.
#cross-references MUID:86261806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        growth factor: complete amino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gimenez-Gallego, G.; Rodkey, J.; Bennett, C.; Rios-Candelore, M.; DiSalvo, J.; Thomas, K. Science (1985) 230:1385-1388 Brain-derived acidic fibroblast growth factor: complete amino acid sequence and homologies.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Crabb, J.W.; Armes, L.G.; Carr, S.A.; Johnson, C.M.; Roberts,
G.D.; Bordoli, R.S.; McKeehan, W.L.
Biochemistry (1986) 25:4988-4993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Burgess, W.H.; Mehlman, T.; Marshak, D.R.; Fraser, B.A.; Maciag, T. Proc. Natl. Acad. Sci. U.S.A. (1986) 83:7216-7220 Structural evidence that endothelial cell growth factor beta is the precursor of both endothelial cell growth factor alpha and acidic fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Quinkler, W.; Maasberg, M.; Bernotat-Danielowski, S.; Luethe,
                     Characterization of a bovine acidic FGF cDNA clone and its expression in brain and retina.
                                                                                                                                                                                                                                                                                                             ##molecule_type mRNA
##residues 1-18 ##label PHI
##cross-references EMBL:X66446; NID:g411; PIDN:CAA47063.1; PID:g412
RNCE A94290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bohlen, P.; Esch, F.; Balrd, A.; Gospodarowicz, D. EMBO J. (1985) 4:1951-1956
Acidic fibroblast growth factor (FGF) from bovine brain: amino-terminal sequence and comparison with basic FMF.
                                                                                                                                                                               ##cross-references EMBL:X14032; NID:g322; PIDN:CAA32192.1; PID:g323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N.; Sharma, H.S.; Schaper, W.
Eur. J. Blochem. (1989) 181:67-73
Isolation of heparin-binding growth factors from bovine,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Philippe, J.M. submitted to the EMBL Data Library, May 1992 S22065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          porcine and canine hearts
#cross-references MUD:89231704
(1988) 242:41-46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##molecule_type mRNA
##residues 62-102 ##label ABR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##molecule_type protein
##residues 16-155 ##label GIM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##molecule_type protein
##residues 16-45 ##label QUI
                                                                                                                                                            ALT
                                                                                                                     ##molecule_type mRNA
##residues 1-155 ##label
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #cross-references MUID:86055750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #cross-references MUID:86070224
#accession A94281
FEBS Lett.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           803953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A91010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A24477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A94281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         503953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A91010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A24477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A94127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B24663
                                                                               tcross-references
```

```
502639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                802639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ALTERNATE_NAMES ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CLASSIFICATION
                                                                                                                                      ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                 #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #authors
#journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #authors
#journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KEYWORDS
                                                                                                                                                                                                                                                                                                                                                     COMMENT
                                                                                                                                                                                                                 COMMENT
                                                                                                                                                                                                                                                                                                                                                                     COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #authors Kuo, M.D.; Huang, S.S.; Huang, J.S.
#journal J. Biol. Chem. (1990) 265:16455-16463
#filte Acidic fibroblast growth factor receptor purified from bovine liver is a novel protein tyrosine kinase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Brain Res. Dev. Brain Res. (1991) 63:13-19
Class 1 heparin binding growth factor promotes the
differentiation but not the survival of ciliary neurones in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Disalvo, J.
J. Protein Chem. (1987) 6:163-171
Primary structure and mitogenic and angiogenic activities of brain-derived acidic fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #authors Philippe, J.M.; Renaud, F.; Desset, S.; Laurent, M.; Mallet, J.; Courtols, Y.; Edwards, J.B.
J.; Courtols, Y.; Edwards, J.B.
Bjochem. Blophys. Res. Commun. (1992) 188:843-850
Cloning of two different 5' untranslated exons of bovine acidic fibroblast growth factor by the single strand ligation to single-stranded cDNA methodology.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4
                                                                                                                                                                                                                                   growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       form
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hill, C.E.; Belford, D.A.; Godovac-Zimmermann, J.; Hendry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##molecule_type protein
##residues 11-26;28-50;53-110,'H',112,'NTY';134-155 ##label HIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A34477
Sasaki, H.; Hoshi, H.; Hong, Y.M.; Suzuki, T.; Kato, T.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##cross-references EMBL:X66446; NID:g411; PIDN:CAA47063.1; PID:g412
                                                                                                                                                    this form was designated acidic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ď
                                                                                                                                                                                                             22-155 ##label BU3
this form was designated alpha endothelial cell
factor
                                                        cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     of
B
                                                                                                                                                                                                                                                                                      #authors Strydom, D.J.; Harper, J.W.; Lobb, R.R.
#journal Blochemistry (1986) 25:945-951
#title Amino acid sequence of bovine brain derived class heparin binding growth factor.
#cross-references MUID:86187766
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Thomas, K.A.; Gimenez-Gallego, G.; Rios-Candelore,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##molecule_type protein
##residues 62-76,/X',78-86 ##label KUO
##note this sequence is an amino-terminal fragment
designated as brain-derived growth factor
                                                      endothelial
              ##molecule_type protein
##residues 2-155 ##label BUR
##note this form was designated beta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                        ##molecule_type protein
##residues 16-155 ##label STR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##molecule_type protein
##residues 16-155 ##label THO
                                                                                                                                  16-155 ##label BU2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1-18 ##label PH2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #cross-references MUID:92164087
                                                                           factor
                                                                                                             ##molecule_type protein
##residues 16-155
                                                                                                                                                                                           ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##molecule_type mRNA
##residues 1-18
                                                                                                                                                                                                                                                                      A24539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A61198
B25043
                                                                                           C25043
                                                                                                                                                                      A25043
                                                                                                                                                                                                                                                                                                                                                                                      A24539
                                                                                                                                                                                                                                                                                                                                                                                                                                                A60884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A37892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B37892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A61198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               I46024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          I46024
                                                                                                                                                                                                               ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #accession
#accession
                                                                                             *accession
                                                                                                                                                                          #accession
                                                                                                                                                                                                                                                                                                                                                                                          *accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      *accession
                                                                                                                                                        ##note
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #title
                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
```

```
region flanked by Lys-Lys dipeptides) and a number of neuropeptides, including a gastrin-releasing peptide from the pig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type mRNA
##residues 1-155 ##label SCH
##cross-references GB:S63263; NID:9234372; PIDN:AAB19629.1; PID:9234373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Risau, W.; Gautschi-Sova, P.; Boehlen, P.
EMBO J. (1988) 7:959-962
Endothelial cell growth factors in embryonic and adult chick
brain are related to human acidic fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                           The acidic and basic fibroblast growth factors are the major endothelial-cell growth factors. Both are anglogenic agents in vivo and are potent mitogens for a variety of mesodern-derived cell types in vitro (although bFGF is 30-100 times more potent than aFGF in stimulating the proliferation of normal diploid cells). There are differences in the tissue distribution and concentration of these two growth factors.

This protein binds heparin, although less strongly than does bFGF. There are some sequence similarities between residues 117-126 (a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                  bovine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             81 AMDTDGLLYGSQTPNEECLFLERLEENHYNTYISKKHAEKHWFVGLKKNGRSKLGPRTHF 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21 GNYKKPKLLYCSNGGYFLRILPDGTVDGTKDRSDQHIQLQLCAESIGEVYIKSTETGQFL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A60130 #type complete
acidic fibroblast growth factor - chicken
endochelial cell growth factor
#formal_name Gallus gallus #common_name chicken
03-Mar-1993 #sequence_revision 03-Mar-1993 #text_dange
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Differentiating and mature neurons express the acidic fibroblast growth factor gene during chick neural
Sasaki, H.; Saito, M.; Youki, H.; Karube, K.; Konno Onodera, M.; Saito, T.; Aoyagi, S.
J. Biol. Chem. (1989) 264:17606-17612
Purification of acidic fibroblast growth factor from heart and its localization in the cardiac myocytes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              22-30,'X',32-44,'X',46-48 ##label
#superfamily fibroblast growth factor
growth factor
                                                                                                                                                                                                                                                      ##molecule_type protein
##residues 16-24;121-127;134-143 ##label SAS
##experimental_source heart
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 917; DB 1; Le
Pred. No. 9.63e-180;
6; Mismatches 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Schnuerch, H.; Risau, W.
Development (1991) 111:1143-1154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Note: remainder of annotations omitted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #cross-references MUID:91347925
#accession A60130
                                                                                                                                                      tcross-references MUID:90008933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #cross-references MUID:88296438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            preliminary
                                                                                                                                                                                                                        preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 72.5%;
Best Local Similarity 91.9%;
Matches 124; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A60130; S02639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               141 GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   161 GQKAILFLPLPVSSD 175
```

ဖ

Local

SUMMARY

Matches

ω

141

셤

ò

ŏ

g

ö

REFERENCE #authors

COMMENT

ACCESSIONS

```
#authors Abraham, J.A.; Mergia, A.; Whang, J.L.; Tumolo, A.; Friedman, J.; Hjerrild, K.A.; Gospodarowicz, D.; Fiddes, J.C.
#journal Science (1986) 233:545-548
#title Nucleotide sequence of a bowine clone encoding the anglogenic protein, basic fibroblast growth factor.
#cross-references MUID:86261806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   **residues 3-157 #*label ABR
##cross-references GB:M13440; NID:9163049; PIDN:AAA30518.1; PID:9163050
##experimental_source pituitary gland
**NCE A90224
                                                                                                                                                                                                                                                                                                                                                                        ##residues 95-128 ##label MIT ##cross references EMBL.X56804; NID:g62855; PIDN:CAA40139.1; PID:g62856 FICATION #superfamily fibroblast growth factor #cotor #length 189 #molecular-weight 20312 #checksum 8538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        basic fibroblast growth factor precursor - bovine (fragment) bFGF; kidney-derived growth factor; prostatropin #formal_name Bos primigenius taurus #common name cattle 13-Aug-1986 #sequence_revision 02-Jun-1995 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Milner, P.G.; Li, Y.S.; Hoffman, R.M.; Kodner, C.M.; Siegel, N.R.; Deuel, T.F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Fiddes,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #journal Cold Spring Harb. Symp. Quant. Biol. (1986) 51:657-668 #title Human basic fibroblast growth factor: nucleotide sequence. 'genomic organization, and expression in mammalian cells. #cross-references WILD:872170166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         43 LPALPDDGGGGAFPPGHFKDPKRLYCKNGGFFLRINPDGRVDGVREKSDPHIKLQLQAEE 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  103 RGVVSIKGVSANRFLAMKEDGRLLALKCATEECFFFERLESNNYNTYRSRKYSD--WYVA 160
                                                                                                                                 sequence extracted from NCBI backbone (NCBIN:131000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10-Sep-1999 A3246; A61550; A61551; A60310; A61094;
                                                                                                                                                                      $23636
Mitrani, E.; Gruenbaum, Y.; Shohat, H.; Ziv, T.
Development (1990) 109:387-393
Fibroblast growth factor during mesoderm induction in fearly chick embryo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 530; DB 2; Length 189
Pred. No. 2.16e-90;
29; Mismatches 43; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A01386; A60316; A22054; A24819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      161 LKRTGQYKPGPKTGPGQKAILFLPMSAKS 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #type fragment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type mRNA
##residues 3-157 ##label AB2
                                                                                                                                                        NCBIP:131001)
                                           ##status preliminary
##molecule_type nucleic acid
##residues 1-189 ##label
#cross-references MUID:93246053
#accession A48834
                                                                                                               ##experimental_source embryo
                                                                                                                                                                                                                                                                                          #cross-references MUID:90382254
                                                                                                                                                                                                                                                                                                                                 preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       41.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity 50.3%;
Matches 75; Conservative
                                                                                                                                                                                                                                                                                                                                                        ##molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A33784
                                                                                                                                                                                                                                                                                                            S23636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A94290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GKBOB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                       CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                     #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #accession
                                                                                                                                                                                                                                                                                                                 #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
#authors
                                                                                                                                                                                                                          #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10
                                                                                                                                                                                                   #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                              SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #journal Biochem. Biophys. Res. Commun. (1998) 246:182-191
#title Primary structure of ovine fibroblast growth factor-1 deduced
#cross-references MUID:98262939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                        ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sidues The specific state of heparin.
In the absence of heparin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Borja, A.Z.; Meijers, C.; Zeller, R.
Bor, Biol. (1993) 157:110-118
Expression of alternatively spliced bFGF first coding exons
and antisense mRNAs during chicken embryogenesis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Grieb, T.W.; Ring, M.; Brown, E.; Palmer, C.; Belle, N.;
Donjerkovic, D.; Chang, H.; Yun, J.; Subramanian, R.;
Forozan, F.; Guo, Y.; Vertes, A.; Winkles, J.A.; Burgess,
                                                                                                                                                                                                                      41 ANYKRPKLIJYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 100
                                                                                                                                 21 GNYKKPKLLYCSNGGHFLRILPDGKVDGTRDRSDQHIQLQLSAEDVGEVYIKSTASGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           basic fibroblast growth factor - chicken #formal_name Gallus gallus #common_name chicken 01-bec-1993 #sequence_revision 18-Nov-1994 #text_change 16-Jul-1999
                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #formal_name Ovis sp. #common_name sheep
17-Jun-1998 #sequence_revision 10-Jul-1998 #text_change
07-May-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
#molecular-weight 17322 #checksum 7617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #checksum 8890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 155;
                                             Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    *superfamily fibroblast growth factor *length 155 *molecular-weight 17557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 906; DB 2; Le
Pred. No. 3.62e-177;
8; Mismatches 5;
                                         Score 916; DB 2; Los
Pred. No. 1.65e-179;
6; Mismatches 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                       JW0055 #type complete
fiblobrast growth factor-1 - sheep
FGF-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #type complete
                                             72.4%;
larity 90.4%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 71.6%;
Best Local Similarity 90.4%;
Matches 122; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A48834; S23636
                                                                                                                                                                                                                                                                                                                                 161 GOKAILFLPLPVSSD 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                            GOKAILFLPLPVSAD 155
  length 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##molecule_type mRNA
                                                               Similarity
122; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A48834
                                                                                                                                                                                                                                                                                                                                                                                                                                                              /TITLE
ALTERNATE_NAMES
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CLASSIFICATION
SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #accession
                                               Query Match
```

#authors #journal #title

ACCESSIONS REFERENCE

ENTRY TITLE ORGANISM

DATE

RESULT

141

a a

ò g

ä

Gaps

;;

Length 189

```
TITLE
ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                 #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11
                                                                                authors
                                                                                                       #journal
                                                                                                                                                                                                                                                                                                                                   #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                               REFERENCE
                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        27-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         16-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  23-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ENTRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #journal Proc. Natl. Acad. Sci. U.S.A. (1985) 82:6507-6511
Frimary structure of bovine pituitary basic fibroblast growth factor (FGF) and comparison with the amino-terminal sequence of bovine brain acidic FMF.
#cross-references MUD:86016731
#accession A01386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gospodarowicz, D.; Baird, A.; Cheng, J.; Lui, G.M.; Esch, F.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Esch, F.; Baird, A.; Ling, N.; Ueno, N.; Hill, F.; Denoroy, L.; Klepper, R.; Gospodarowicz, D.; Bohlen, P.; Guillemin,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #authors Bertolini, J.; Hearn, M.T.W.
#Journal Mol. Cell. Endocrinol. (1987) 51:187-199
#title Isolation, characterisation and tissue localisation of an
#cross-references MUID:87247652
#accession A61550
                                                                                                                                                                                                                                                                                                                                                                                            #authors Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R.
#journal Mol. Cell. Endocrinol. (1987) 49:189-194
#title Isolation and partial characterization of basic fibroblast
#cross-references MUD:87162856
#accession A61551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #journal Endocrinology (1986) 118:82-90
#title Isolation of fibroblast growth factor from bovine adrenal gland: physicochemical and biological characterization.
#cross-references WIID:86081530
                                                                                                                                                            demonstration of a possible alternative initiator or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              this form appears to be identical to the renal form
Biochem. Biophys. Res. Commun. (1989) 165:1096-1103
A novel 17 kD heparin-binding growth factor (HBGF-8) in
bovine uterus: purification and N-terminal amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         the amino end of this form was blocked; the peptide composition matched what was thought to be the signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R. Blochen. Blophys. Res. Commun. (1986) 138:580-588 Isolation of an amino terminal extended form of basic fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##molecule_type protein
t*residues
12-25,27-35,'X',37-40 ##label GOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##molecule_type protein
##residues 27-35,'X',37-41 ##label UE3
##experimental_source testes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##molecule_type protein
##residues 23-35, X',37-42 ##label UEN
#experimental_source liver
NACE A24819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##experimental_source adrenal gland
NCE A01386
                                                                                                                                                                                                                                                                                                                                         ##molecule_type protein
##residues 16-35 ##label BER
                                                                                                                                                                                 splice junction
                                                                                                                                         1-14 ##label MIL
                                                                         #cross-references MUTD:90121211
#accession A33784
##molecule_type protein
##residues 1-14 ##label
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   *cross-references MUID:86295737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bohlen, P.
                                                             sednence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sednence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          annotation
                                                                                                                                                                                                                                                                                                                                                                                     A61551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A60310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A61094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A61094
                                                                                                                                                                                                                                                                                                                          #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #contents
#note
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##note
                                                                                                                                                              ##note
                                                                                                                                                                                                                                                                                                                                                                                   ERENCE
#authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
#authors
  #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #authors
                #title
                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
```

```
#status predicted #label MATI\
#product basic fibroblast growth factor, pituitary gamma
form #status experimental #label MAT2\
#product basic fibroblast growth factor, pituitary alpha
form #status experimental #label MAT3\
#product basic fibroblast growth factor, pituitary short
form #status predicted #label MAT4\
#product basic fibroblast growth factor, hepatic form
#status experimental #label MAT5\
#product basic fibroblast growth factor, negatic form
#status experimental #label MAT5\
#product basic fibroblast growth factor, renal form
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #authors Bohlen, P.; Baird, A.; Esch, F.; Ling, N.; Gospodarowicz, D.
#journal Proc. Natl. Acad. Sci. U.S.A. (1984) 81:5364-5368
#title Isolation and partial molecular characterization of pituitary fibroblast growth factor.
#cross-references MUID:84298139
                                                                                                                       Baird, A.; Esch, F.; Boehlen, P.; Ling, N.; Gospodarowicz, D. Regul, Peptr. (1985) 12:201-213
Isolation and partial characterization of an endothelial cell growth factor from the bovine kidney: homology with basic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #region heparin binding #status predicted\
#modified_site blocked amino end (Ala) (in mature form pituitary gamma) (probably acetylated) #status experimentus |
#length 157 #checksum 1115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Tiles # | 12-26 ##label BOH

The acidic and basic fibroblast growth factors are the major
endothelial-cell growth factors. Both are anglogenic agents in
vivo and are potent mitogens for a variety of mesoderm-derived
cell types in vitro (although brGF is 30-100 times more potent
than arGF in stimulating the proliferation of normal diploid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This protein binds heparin more strongly than does aFGF.
FION #superfamily fibroblast growth factor
alternative splicing; anglogenesis; growth factor; heparin
binding; mitogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #product basic fibroblast growth factor, uterine form
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             71 RGVVSIKGVCANRYLAMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVA 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11 LPALPEDGGSGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEE 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       26 VPSPAGARANGTLIDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAES 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 157;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 524; DB 1; Length 157
Pred. No. 4.91e-89;
29; Mismatches 42; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #status experimental #label MAT6\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S06185 #type complete
basic fibroblast growth factor - sheep
prostatropin
                                                                                                                                                                                                                                                                                                                               ##experimental_source kidney
NCE A2054
A21054
                                                                                                                                                                                                                                            fibroblast growth factor.
#cross-references MUID:86095426
#accession A60316
                                                        ##experimental_source pituitary gland
NCE A60316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          129 LKRTGQYKLGPKTGPGQKAILFLPMSAKS 157
                             12-157 ##label ESC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   / Match
Local Similarity 51.0%;
les 76; Conservative
##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A22054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cells)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##residues
                                 ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         29-33,118-121
4
```

œ

```
##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##status
                                                                                                                                                                                                                                                                                                                                      #accession
                                                                                                                       #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #accession
                                                                                                                                                                                                                                                                                                                                                                                                 ##note
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##note
                                    #journal
#title
                                                                                                                                                                                                                       #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #authors
                    #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                             #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #journal
                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #title
  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                  Simpson, R.J.; Moritz, R.L.; Lloyd, C.J.; Fabri, L.J.; Nice,
E.C.; Rubira, M.R.; Burgess, A.W.
FEBS Lett. (1987) 224:128-132
Primary structure of ovine pituitary basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ĥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A32398 #type complete basic fibroblast growth factor precursor, 22.5K form - human brgF; fibroblast growth factor 2; prostatic growth factor;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##residues 1-210 ##label PRA ##cross-references GB:J04513; NID:g183083; PIDN:AAA52531.1; PID:g459811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #authors Prats, H.; Kaghad, M.; Prats, A.C.; Klagsbrun, M.; Lelias, J.M.; Liauzun, P.; Chalon, P.; Tauber, J.P.; Amalric, F.; Smith, J.A.; Caput, D. Fijournal Proc. Natl. Acad. Sci. U.S.A. (1989) 86:1836-1840 #title High molecular mass forms of basic fibroblast growth factor are initiated by alternative CUG codons.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1-114 ##label SHI
authors translated the codon GGA for residue 47 as Ala
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    *journal Growth Factors (1991) 4:277-287
#title Functional characterization of the human basic fibroblast #cross-references MUD:92110035
#accession A61537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A32398; A61537; A26642; B32878; S00297; A54316; B54316;
A33624; A25824; B24243; B24301; S42242; B55784; 152267;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61 GVVSIKGVCANRYLAMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVAL 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PALPEDGGSSAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEER 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #formal_name Homo sapiens #common_name man
31.Jul-1989 #sequence_revision 31-Dec-1993 #text_change
                  ame domestic sheep
#sequence_revision 10-Sep-1999 #text_change
                                                                                                                                                                                                                                                                                                                                                      #region heparin binding #status predicted\
#region heparin binding #status predicted
#length 146 #molecular-weight 16434 #checksum 3560
#formal_name Ovis orientalis aries, Ovis ammon aries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;
;
                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 1; Length 146;
                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 517, DB 1; Length 146
Pred. No. 1.87e-87;
29; Mismatches 42; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        prostatropin
basic fibroblast growth factor, 18K form
                                                                                                                                                                                                                                                                          1-146 ##label SIM #superfamily fibroblast growth factor growth factor; heparin binding; mitogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            119 KRTGQYKLGPKTGPGQKAILFLPMSAKS 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #cross-references MUID:88055577 #accession S00185
                  #common_name d
10-Sep-1999 #seq
10-Sep-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 40.9%;
Best Local Similarity 50.7%;
Matches 75; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        16-Jul-1999
                                                                                                                                                                                                                                                    ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##molecule_type mRNA
                                                                                                                                                                                                  actor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##molecule_type DNA
##residues 1-1
                                                                           S00185
                                                                                                                                                                                                                                                                                *residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                               CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##note
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            12
                                                                                                                    #authors
                                                                                                                                                                                                                                                                                                                                                          18-22
107-110
                                                                                                                                                         #journal
                                                                         ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ESSIONS
                                                                                                                                                                          #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CONTAINS
ORGANISM
-DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                REFERENCE
  ORGANISM
                                                                                                                                                                                                                                                                                                                   KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                               MMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
ENTRY
                                    DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
```

```
Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Friedman, J.; Gospodarowicz, D.; Fiddes, J.C.
EMBO J. (1986) 5:2523-2528
Human basic fibroblast growth factor: nucleotide sequence and genomic organization.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Feige, J.J.; Bradley, J.D.; Fryburg, K.; Farris, J.; Cousens, L.C.; Barr, P.J.; Baird, A. J. Cell Biol. (1989) 109:3105-3114
Differential effects of heparin, fibronectin, and laminin on the phosphorylation of basic fibroblast growth factor by protein kinase C and the catalytic subunit of protein
                                                                                                                                                                                         ##molecule_type mRNA
##residues 56-210 ##label KUR
##cross-references GB:M27968; NID:g182562; PIDN:AAA52448.1; PID:g182563
##cross-references GB:M27968; NID:g182562; PIDN:AAA52448.1; FID:g182563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        the authors translated the codon GAA for residue 108 as \ensuremath{\mathrm{Gl}}_{y}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 56-210 ##label ABR
the authors translated the codon GAA for residue 108 as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #journal Jpn. J. Cancer Res. (1991) 82:1263-1270

#title Characterization of high-molecular-mass forms of basic fibroblast growth factor produced by hepatocellular carcinoma cells: possible involvement of basic fibroblast growth factor in hepatocarcinogenesis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Story, M.T.; Esch, F.; Shimasaki, S.; Sasse, J.; Jacobs, S.C.; Lawson, R.K.
Blochem. Blophys. Res. Commun. (1987) 142:702-709
Amino-terminal sequence of a large form of basic fibroblast growth factor isolated from human benign prostatic hyperplastic tissue.
                                                                                                                                                                                                                                                                                                                                                                                                 #journal Cold Spring Harb. Symp. Quant. Biol. (1986) 51:657-668
#title Human basic fibroblast growth factor: nucleotide sequence,
genomic organization, and expression in mammalian cells.
#cross-references MUID:87217066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #accession A5431b
##molecule_type protein
##molecule_type protein
##molecule_type protein
##residues 'XX',86.88,'X',90-91,'X',93-95 ##label SH3
##residues 'XX',86.88,'X',90-91,'X',93-95 ##label SH3
##experimental_source C-1i21 hepatocellular carcinoma cell line
##note
##note
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##molecule_type protein
##residues 'XXX',19,'X',21-29 ##label SH2
##residues sequence extracted from NCBI backbone (NCBIP:71594)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Shimoyama, Y.; Gotoh, M.; Ino, Y.; Sakamoto, M.; Kato, Hirohashi, S.
Kurokawa, T.; Sasada, R.; Iwane, M.; Igarashi, K.
FEBS Lett. (1987) 213:189-194
Cloning and expression of cDNA encoding human basic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              not compared with conceptual translation
                                                                                                fibroblast growth factor. #cross-references MUID:87162468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##molecule_type protein
##residues 57-210 ##label FEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1-155 ##label AB2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #cross-references MUID:90078343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #cross-references MUID:87053817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 kinase A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GLy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##molecule_type mRNA
##residues 56-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type DNA
##residues 1-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A54316
                                                                                                                                                                     A26642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         500297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A33624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A25824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B32878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S00297
```

```
#accession
                                                                   ##note
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | journal
                                                                                                                                                                                                                                                                                                                                                                                         171-174
SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                              65-210
                                                                                                                                                                                                                                                               FEATURE
1-210
                                                                                                            #gene
                                                                                        GENETICS
                                                                                                                                                                                                                    KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                         82-86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
ENTRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #journal Biochem. Blophys. Res. Commun. (1992) 187:1227-1231
Reverse transcription with nested polymerase chain reaction shows expression of basic fibroblast growth factor transcripts in human granulosa and cumulus cells from in vitro fertilisation patients.
                                                                                                                          Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A. Blochem. Blophys. Res. Commun. (1986) 135:541-548 Human brain-derived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitogenic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #authors Patry, V.; Bugler, B.; Amalric, F.; Prome, J.C.; Prats, H.
#journal FEBS Lett. (1994) 349:23-28
#title Purlification and characterization of the 210-amino acid recombinant basic fibroblast growth factor form (FGF-2).
#cross-references MUID:94320639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pantoliano, M.W.; Horlick, R.A.; Springer, B.A.; Van Dyk, D.E.; Tobery, T.; Wetmore, D.R.; Lear, J.D.; Nahapetian, A.T.; Bradley, J.D.; Sisk, W.P.
Biochemistry (1994) 33:10229-10248
Multivalent ligand-receptor binding interactions in the fibroblast growth factor system produce a cooperative growth factor and heparin mechanism for receptor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Watson, R.; Anthony, F.; Pickett, M.; Lambden, P.; Masson,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sommer, A.; Brewer, M.T.; Thompson, R.C.; Moscatelli, D.; Presta, M.; Rifkin, D.B.
Presta, M.; Rifkin, D.B.
Presta, M.; Rifkin, D.B.
Ricchem. Blophys. Res. Commun. (1987) 144:543-550
A form of human basic fibroblast growth factor with an extended amino terminus.
                                                                                                                                                                                                                                                                                                                                                                  Gautschi, P.; Frater-Schroder, M.; Bohlen, P. FEBS Lett. (1986) 204:203-207 FETAL Lat molecular characterization of endothelial cell mitogens from human brain: acidic and basic fibroblast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##residues__rpc mann
##residues
##cross-references EMBL:M17599; NID:g183086; PIDN:AAA52534.1;
PID:g183087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##molecule_type protein
##residues 65-88,'x',90-98,'x',100 ##label GAU
                                                                                                                                                                                                                                                      cession B24243
##molecule_type protein
##residues 65-102, X',104-105 ##label GIM
##experimental source brain
NCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##residues 95-182 ##label RES ##cross-references GB:S47380; NID:9256535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##experimental_source granulosa_cells
NCE S46253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type protein
##residues 54-71 ##label PAN
                                                                                   ##experimental_source prostate
NCE A90122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     G.M.; Thomas, E.J
                                                               ##label
                                                                                                                                                                                                                                                                                                                                                                                                                                             #cross-references MUID:86275260
#cross-references MUID:87156686
                                                                                                                                                                                                                                        #cross-references MUID:86186784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #cross-references MUID:87213238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #cross-references MUID:94347757
#accession B55784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##molecule_type mRNA
##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  dimerization
                                      ##molecule_type protein
##residues 57-77 #
                                                                                                                                                                                                                    activities
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                542242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       152267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S42242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       152267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          *accession
                                                                                                                                                                                                                                                               *accession
                                                                                                                          #authors
#journal
                                                                                                                                                                                                                                                                                                                                                                  #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tauthors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #authors
                                                                                                                                                                                                                                                                                                                                                                                           #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #title
                                                                                                          REFERENCE
                                                                                                                                                                         #title
                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                             title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
```

```
Shimasaki, S.; Emoto, N.; Koba, A.; Mercado, M.; Shibata, F.; Cooksey, K.; Baird, A.; Ling, N. Biochem. Biochys. Res. Commun. (1988) 157:256-263 Complementary DNA cloning and sequencing of rat ovarian basic fibroblast growth factor and tissue distribution study of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              El-Husseini, A.E.D.; Paterson, J.A.; Myal, Y.; Shiu, R.P.C.
Blochim. Blochys. Acta (1992) 1131:314-316
PCR detection of the rat brain basic flbroblast growth factor
(bFGF) mRNA containing a unique 3' untranslated region.
                                                                                                                                                                                                                                                       #superfamily fibroblast growth factor
alternative initiators; angiogenesis; growth factor; heparin
binding; mitogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##cross-references EMBL:X07285; NID:956203; PIDN:CAA30265.1; PID:956204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    64 LPALPEDGGSGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEE 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              124 RGVVSIKGVCANRYLAMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYT--SWYVA 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Kurokawa, T.; Seno, M.; Igarashi, K.
Nucleic Acids Res. (1988) 16:5201
Nucleotide sequence of rat basic fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              26 VPSPAGARANGTLLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAES 85
                                                                                                                                                                                                                                                                                                                                                                    #product basic fibroblast growth factor, 22.5K form
#status predicted #label MA2\
#product basic fibroblast growth factor, 18K form
#status predicted #label MAT\
#status predicted #label MAT\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #formal_name Rattus norvegicus #common_name Norway rat
21-May-1990 #sequence_revision 21-May-1990 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #region heparin binding #status predicted\
#region heparin binding #status predicted
#length 210 #molecular-weight 22623 #checksum 3610
                                                                                        Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A31674 #type complete
basic fibroblast growth factor precursor - rat
bFGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 517; DB 2; Length 210;
Pred. No. 1.87e-87;
30; Mismatches 42; Indels
                                                       39-53;65-88 ##label PAT
recombinant gene expressed in
                                                                                                                                                                  ##cross-references GDB:119910; OMIM:134920 #map_position 4q25-4q27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              182 LKRTGQYKLGSKTGPGQKAILFLPMSAKS 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A31674; S00876; S24309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##molecule_type mRNA
##residues 1-154 ##label KUR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #cross-references MUID:89061721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #cross-references MUID:88262516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity 50.3%;
Matches 75; Conservative
                                                                                                                                             GDB: FGF2; FGFB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16-Jul-1999
                             ##molecule_type protein
##residues 39-53;6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Lts mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type mRNA
$46253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A31674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##residues
                                                                                                                                                                                                                            #start_codon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ALTERNATE_NAMES
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #accession
```

```
basic fibroblast growth factor - short-tailed opossum
                                                                                                                                                                                                                                                     ##residues
                                                                                                                                                              #description
                                                                                                                                              #submission
                                                                                                                                                                                                                    ##status
                                                                                                                                                                                                  #accession
                                                                                                                             #authors
                                                                                        ACCESSIONS
REFERENCE
                                    ORGANISM
 TITLE
                                                       DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                colation of CDNAs encoding four mouse FGF family members and characterization of their expression patterns during
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##residues 35-154 ##label ELH ##crossreferences EMBL.%61697; NID:956143; PIDN:CAA43863.1; PID:956144 #FICATION #superfamily fibroblast growth factor growth factor
                                                                                                                                                                                                                                                                                       ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A37360
Hebert, J.M.; Basilico, C.; Goldfarb, M.; Haub, O.; Martin,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            41 ANYKRPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 100
                                                                                                                                                                                                                                                                                                                                                                                                               83 AMKEDGRLLASKCVTEECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGSKTGP 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                76 VCANRYLAMKEDGRLLASKCVTEECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYK 133
                                                                                                                                                                                                                                                                                                                                          34 ANGTLLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKS 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       23 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYL 82
                                                                                                                                                                                                                                                                                                                        16 GGGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKG 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C37360 #type complete
basic fibroblast growth factor - mouse
#formal_name Mus musculus #common_name house
17.4pr-1993 #sequence_revision 17.4pr-1993 #text_change
                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                         #domain signal sequence #status predicted #label
#product basic fibroblast growth factor #status
predicted #label MAT
#length 154 #molecular-weight 17139 #checksum 3026
                                                                                                                                                                                                                                                                                        ä
                                                                                                                                                                                                                                                  Score 513; DB 2; Length 154;
Pred. No. 1.49e-86;
26; Mismatches 39; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      36; Indels
              ##Status preliminary. translation not shown ##molecule_type mRNA ##rea:4-1--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 508; DB 2; I
Pred. No. 2.00e-85;
23; Mismatches 36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Dev. Biol. (1990) 138:454-463
Isolation of cDNAs encoding for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |::| |||||||:: |
154 RGPRTHYGQKAILFLPLPUSS 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 134 LGSKTGPGQKAILFLPMSAKS 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          embryogenesis.
#cross-references MUID:90201563
#accession C3714A
#cross-references MUID:92329546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##molecule_type mRNA
##residue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity 54.5%;
Matches 73; Conservative
                                                                                                                                                                                                                                                   Query Match 40.6%;
Best Local Similarity 52.5%;
Matches 74; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        141 GOKAILFLPMSAKS 154
                                                                      ##residues
                                                                                                     CLASSIFICATION
KEYWORDS
                    #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #title
                                                                                                                                                                             10-154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                            FEATURE
                                                                                                                                                                                                                SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
```

#type fragment

531622

RESULT ENTRY

```
ä
                                                                                                                                                                            Kusewitt, D.F.; Sabourin, C.L.K.; Budge, C.L.; Ley, R.D. submitted to the BNBL Data Library, September 1992 Characterization of CDNA encoding basic fibroblast growth factor of the marsuplal Monodelphis domestica.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     71 LQLQAEERGVVSIKGVCANRYLAMKEDGRLLALKYVTEECFFFERLESNNYNTYRSRKYS 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12 GSITTLPALSGDGG-GGGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGIREKSDPNIK 70
(Monodelphis domestica) (fragment)
#formal_name Monodelphis domestica
20-Feb-1995 #sequence_revision 20-Feb-1995 #text_change
12-Apr-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19 GVLVGMYVPSPAGARANGTLLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 164;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  48; Indels
                                                                                                                                                                                                                                                                                                                                                                                                     ##cross references EMBL.215154
CLASSIFICATION #superfamily fibroblast growth factor
SUMMARY #1ength 164 #checksum 5156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 505; DB 2;
Pred. No. 9.45e-85;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    139 EKNWFVGLKKNGSCKRGPRTHYGQKAILFLPLPVSS 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   131 -- NWYVALKRIGOYKLGSKIGPGOKAILFLPMSAKS 164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Search completed: Tue Aug 29 15:44:12 2000 Job time: 34 secs.
                                                                                                                                                                                                                                                                                                                                                                             1-164 ##label KUS
                                                                                                                                                                                                                                                                                                                     preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 39.9%;
Best Local Similarity 49.4%;
Matches 77; Conservative
                                                                                                                                                                                                                                                                                                                                                ##molecule_type DNA
                                                                                                                                                                                                                                                                                             S31622
```

*****	(TM)	*****
****		****
*****	'	*****
****		*****
********		*******
******		*******
********		*******
*******	<u> </u>	*******
· 在《《· · · · · · · · · · · · · · · · · ·	<u> </u>	<b>化原生物 医阿拉克氏 医克克氏氏 医克克氏氏 医克克氏氏 医克克氏氏 医阿拉克氏氏 医阿拉克氏氏 医克克氏氏 医克克氏氏 医克克氏氏 医克克氏氏征 医克克氏氏征 医克克氏氏征 医克克氏氏征 医阿拉氏氏征 医阿拉氏氏征检查检查检查检查检查检查检查检查检查检查检查检查检查检查检查检查检查检查检</b>

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

protein - protein database search, using Smith-Waterman algorithm Tue Aug 29 15:41:17 2000; MasPar time 7.28 Seconds 745.209 Million cell updates/sec MPsrch pp : 0

Tabular output not generated.

>US-09-121-017B-3 (1-175) from USO9121017B.pep 1265 1 MSRGAGRVOGTLQALVFLGV......PRTHYGQRAILFLPLPVSSD 175 Title: Description: Perfect Score:

Sequence:

PAM 150 Gap 11 Scoring table:

85661 seqs, 30989116 residues Searched:

Post-processing: Minimum Match 0% Listing first 45 summaries

Database:

swiss-prot38

Mean 44.360; Variance 69.125; scale 0.642 Statistics: Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

### SUMMARIES

Pred. No.	2.42e-222	8.20e-218	4.39e-214	5.62e-204	1.04e-203	1.21e-102	4.17e-101	1.43e-99	2.58e-99	2.71e-98	5.13e-97	2.99e-96	3.42e-93	4.13e-88	7.36e-60	2.09e-57	2.09e-57	2.09e-57	5.12e-53	8.37e-52	5.10e-46	2.66e-45
	GROWTH	FACTOR	FACTOR	FACTOR	FACTOR	GROWTH FACT	H FACT	WTH FA	GROWTH FA													
Description	HEPARIN-BINDING	GLIA-ACTIVATING	GLIA-ACTIVATING	GLIA-ACTIVATING	GLIA-ACTIVATING	FIBROBLAST GROWT	FIBROBLAST GROWTH	KERATINOCYTE GROWTH	KERATINOCYTE GRO													
ID di	FGF1_HUMAN	FGF1_MESAU		FGF1_BOVIN	FGF1_CHICK	FGF2_CHICK	FGF2_BOVIN	FGF2_SHEEP	FGF2_HUMAN	FGF2_RAT	FGF2_MOUSE	FGF2_MONDO	FGF2_XENLA	FGF2_RABIT	FGF9_XENLA	FGF9_RAT	FGF9_HUMAN	FGF9_MOUSE	FGFG_HUMAN	FGFG_RAT	FGF7_SHEEP	FGF7_HUMAN
DB				Н	-	-		-	Н	-	-	٦	-	-	-		Н	-	-	ч	Н	Н
Length	155	155	152	155	155	158	155	155	155	154	154	156	155	137	209	208	208	208	207	207	194	194
% Ouery Match	77.9	76.6	75.5	72.5	72.4	41.9	41.4	40.9	40.9	40.6	40.2	39.9	39.0	37.4	28.5	27.7	27.7	27.7	26.2	25.8	24.0	23.7
Score	986	696 696	955	917	916	530	524	518	517	513	208	505	493	473	360	350	350	350	332	327	303	300
ult.	, n	72 17	<b>4</b>	5	9	7	œ	თ	10	11	12	13	14	15	16	17	18	19	20	21	22	23

	7.4 Te-44	1.12e-42	9.96e-42	9.96e-42	8.82e-41	1.52e-40	4.51e-40	1.34e-39	3.96e-39	3.96e-39	3.96e-39	6.80e-39	1.17e-38	3.45e-38	5.92e-38	5.92e-38	1.51e-36	3.77e-35	3.77e-35	6.44e-35	5.46e-34	4.60e-33
:	HFA	FACT	'H FA	FACT																		
0.00	E GROW	GROWTH	E GROWI	GROWTH																		
211001111111111111111111111111111111111	KEKATINOCYTE GROWTH	FIBROBLAST	KERATINOCYTE GROWTH FA	FIBROBLAST	F1BROBLAST																	
םסווסא ליוסת	FGF/ MOUSE	FGFA_XENLA	FGFA_HUMAN	FGFA_RAT	FGF4_CHICK	FGF6_MOUSE	FGFA_MOUSE	FGFB_XENLA	FGFE_MOUSE	FGF5_MOUSE	FGF5_RAT	FGFE_HUMAN	FGF7_RAT	FGF4_BOVIN	FGF3_BRARE	FGF5_HUMAN	FGFB_HUMAN	FGF4_HUMAN	FGFB_MOUSE	FGFC_HUMAN	FGF3_CHICK	FGFD HUMAN
,	4	-	_	7	٦,	7	-	-	-	-1	н	-	-	~		-	-		-	-	7	-
Ċ	174	187	208	215	194	208	509	192	247	264	566	247	194	206	256	268	225	206	225	243	220	245
	4.62	22.8	22.5	22.5	22.2	22.1	22.0	21.8	21.7	21.7	21.7	21.6	21.5	21.3	21.3	21.3	20.8	20.3	20.3	20.2	19.9	19.6
200	270	289	282	282	281	280	278	276	274	274	274	273	272	270	569	269	263	257	257	256	252	248
č	57	25	26	27	28	29	30	31	32	33	34	32	36	37	38	39	40	41	42	43	44	45

### ALIGNMENTS

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | SEQUENCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 
                                                                                                                                                                                                                                                     | heparin-binding growth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | "Alternative splicing generates two forms of                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Chiu I.M., Wang W.P., Lehtoma K.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | factor and its expression in fetal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | "Cloning of the gene coding for human class 1 heparin-binding                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Science                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | and themselved localination to                                                                                                                                                                                                                                                                                                   
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | "Human endothelial cell growth factor: cloning, nucleotide                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | O'Brien S.J., Modi                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM.,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | MEDLINE; 86261805.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1 49 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 7120                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 
                                                                                                                                                                                                                                                                                                                                                                                                                                                       | DEFENSE FACTOR) (REGE) (BEIN ENDOIDEDIND CELL GROWIN FACTOR)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC F                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1001-014-01                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 13-AUG-1987                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | P05230; P075                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | STANDARD; PRT: 155                                                                                                                                                                                                                                                                                                                                                                                                                                     
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------			
		Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;	Mergia A., Tischer E., Graves D., Tumolo A., Miller J., Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;
                                                                                                                                                                                                                                                     | Oncogene 5:755-762(1990). [4] SEQUENCE FROM N.A. MEDILINE; 90073637. Mergia A., Tischer E., Graves D., Tumolo A., Miller J., Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | heparin-binding growth factor 1."; Oncogene 5:755-762(1990). [4] SEQUENCE FROM N.A. MEDLINE; 90073637. Mergia A., Tischer E., Graves D., Tumolo A., Miller J., Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990). [4] SEQUENCE FROM N.A. MEDLINE; 90073637. METGIA A., Tischer E., Graves D., Tumolo A., Miller J., Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990). [4] SEQUENCE FROM N.A. MEDLINE; 90073637. Mergia A., Tischer E., Graves D., Tumolo A., Miller J., Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | MEDLINE; 90265618. Chul I.M., Wang W.P., Lehtoma K.; Chul I.M., Wang W.P., Lehtoma K.; Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990). [4] SEQUENCE FROM N.A. MEDLINE; 90073637. MEDLINE; 90073637. Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | TISSUE-BRAIN STEM; MEDLINE; 9025618. Chiu I.M., Wang W.P., Lehtcma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990). [4] SEQUENCE FROM N.A. MEDLINE; 90073637. Mergia A., Tischer E., Graves D., Tumolo A., Miller J., Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618 Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990). [4] SEQUENCE FROM N.A. MEDLINE; 90073637. Mergia A., Tissher E., Graves D., Tumolo A., Miller J., Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | [3] SEQUENCE FROM N.A. TISSUE-BRAIN SPEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990). [4] SEQUENCE FROM N.A. MEDLINE; 90073637. MEDLINE; 90073637. Mergia A., Tischer E., Graves D., Tumolo A., Miller J., Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Mol. Cell. Biol. 9:2387-2395(1989).  [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90.25518. Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Occogene 5:755-762(1990). [4] SEQUENCE FROM N.A. MEDLINE; 90073637. MEDLINE; 90073637. Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | factor and its expression in fetal tissues."; Mol. Cell. Biol. 9:2387-2395(1989).  [3] SEQUENCE FROM N.A. TISSUE-BRAIN SPEM; MEDLINE; 90265618.  Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990).  [4] SEQUENCE FROM N.A. MEDLINE; 90073637. Mergia A., Tissher E., Graves D., Tumolo A., Miller J., Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; Mol. Cell. Biol. 9:2387-2395(1989). [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM. MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990). [4] SEQUENCE FROM N.A. MEDLINE; 90073637. MEDLINE; 90073637. Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Wang W.P., Lehtcoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; Mol. Cell. Biol. 9:2387-2395(1989). [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 9025518 Chiu I.M., Wang W.P., Lehtcoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990). [4] SEQUENCE FROM N.A. MEDLINE; 90073637. Mergia A., Tissher E., Graves D., Tumolo A., Miller J., Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | MEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; Mol. Cell. Biol. 9:2387-2395(1989). [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. [Alternative splicing generates two forms of mRNA coding for heparin binding growth factor 1."; OCCOGENCE FROM N.A. MEDLINE; 90073637. [4] SEQUENCE FROM N.A. MEDLINE; 90073637. Mergia A., Tischer E., Graves D., Tumolo A., Miller J., Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | TISSUE-BRAIN STEM; Wang W.P., Lehtcoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; MOI. Cell. Biol. 9:2387-2395(1989). [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM, MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtcoma K.; Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990). [4] SEQUENCE FROM N.A. MEDLINE; 90073637. MEDLINE; 90073637. MEDLINE; 90073637. MEDLINE; 90073637. MEDLINE; 90073637. MEDLINE; 90073637. Mergia A., Tischer E., Graves D., Tumolo A., Miller J., Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 89343957. Wang W.P., Lehtcoma K., Varban M.L., Krishnan I., Chiu I.M.; Wang W.P., Lehtcoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal itssues."; MOI. Cell. Biol. 9:2387-2395(1989).  [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 9025518. Chiu I.M., Wang W.P., Lehtcoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990). [4] SEQUENCE FROM N.A. MEDLINE; 90073637. METGIA A., Tischer E., Graves D., Tumolo A., Miller J., Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;          | SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 89343957. Wang W.P., Lethcoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues.";  MOI. Cell. Biol. 9:2387-2395(1989).  SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90255618.  Chiu I.M., Wang W.B., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990).  [4] SEQUENCE FROM N.A. MEDLINE; 90073637. Mergia A., Tischer E., Graves D., Tumolo A., Miller J., Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;                                                                                     | Science 233:341-345(1986).  [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene cooling for human class I heparin-binding factor and its expression in fetal tissues."; MOI. Cell. Biol. 9:2387-2395(1989).  [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM, MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990).  [4] SEQUENCE FROM N.A. MEDLINE; 90073637. | Science 233:541-545(1986).  Science 233:541-545(1986).  [2]  SEQUENCE FROM N.A.  TISSUE=BRAIN STEM; Wang W.P., Lehtcoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; "Cloning of the graph of the sexpression in fetal tissues.";  MOI. Cell. Biol. 9:2387-2395(1989).  SEQUENCE FROM N.A.  TISSUE=BRAIN STEM; MEDLINE; 9025618.  Chiu I.M., Wang W.P., Lehtcoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";  Occogene 5:755-762(1990).  [4]  SEQUENCE FROM N.A.  MEDLINE; 90073637.  Mergia A., Tischer E., Graves D., Tumolo A., Miller J., Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | and chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSGE-BRAIN STEM; Wang W.P., Lehtcoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; MOI. Cell. Biol. 9:2387-2395(1989). [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtcoma K.; Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990). [4] SEQUENCE FROM N.A. MEDLINE; 90073637. | "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986). [2] Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE=BRAIN STEM; WEDLINE; 89343957. WADD W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; "Cloning of the gene coding for human class."; "Cloning of the gene coding for human class."; "Cloning of the gene coding for human class."; "Alloring of the gene coding for human class."; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990). [4] SEQUENCE FROM N.A. MEDLINE; 90073637. Mergia A., Tischer E., Graves D., Tumolo A., Miller J., Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.; | O'Brien S.J., Modi W.S., Mactag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide seg and chromosome localization.";  Science 233:541-545(1986).  [2]  Science 233:541-545(1986).  [2]  SEQUENCE FROM N.A.  TISSUE=BRAIN STEM;  Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues.";  "Cloning of the gene coding for human class I heparin-binding mol. Cell. Biol. 9:2387-2395(1989).  [3]  SEQUENCE FROM N.A.  TISSUE=BRAIN STEM;  MEDLINE; 90265618.  Chiu I.M., Wang W.P., Lehtoma K.;  Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor I.";  Oncogene 5:755-762(1990).  [4]  SEQUENCE FROM N.A.  MEDLINE; 90073637.  MEDLINE; 90073637.  MEDLINE; 90073637.  MESTIA A., Tischer E., Graves D., Tumolo A., Miller J.,  Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.; | Jaye M., Howk R., Burgess W., Rica G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide sequed chromosome localization."; Science 233:541-545(1986).  [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; Mang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; MODI. Cell. Biol. 9:2387-2395(1989).  [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; Alternative Splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990).  [4] SEQUENCE FROM N.A. MEDLINE; 90073637. MEDLINE; 90073637. MEDLINE; PROJO3637. MEDLINE | Homo Saptens (Human).  Bukaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleosto Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  [1] SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O. Brien S.J., Modi W.S., Maciag T., Drohan W.N.; Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986).  SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; MCDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; MCDLINE; B101. 9:2387-2395(1989).  TISSUE-BRAIN STEM; MCDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; Alternative Splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990).  [4] SEQUENCE FROM N.A. MEDLINE; 90073637. MEDLINE; 90073637  | FORT LOW FUGE.  Homo sapiens (Human).  EUKATYOCA: Metazoa: Chordata; Craniata; Vertebrata: Euteleostc  Mammalia; Eutherla: Primates; Catarrhini; Hominidae; Homo.  [1]  SEQUENCE FROM N.A.  MEDLINE: 86201805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.  O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothalial call growth factor: cloning, nucleotide seq and chromosome localization.";  Science 233:541-545(1986).  Science 233:541-545(1986).  TISSUE-BRAIN STEM;  MEDLINE: 89343957.  Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues.";  MEDLINE; 89343957.  WANDLINE; 90265618.  Chiu I.M., Wang W.P., Lehtoma K.;  Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor I.";  Oncogene 5:755-762(1990).  SEQUENCE FROM N.A.  SECUENCE FROM N.A.  SECUENCE FROM N.A.  SECUENCE FROM N.A.  Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor I.";  METSINE: 9037857.  METSINE: 90378578.  METSINE: 9037857.  METSINE: 9037857. | FGET OR FGEA.  Homo sapiens (Human).  Homo sapiens (Human).  Homo sapiens (Human).  Homo sapiens (Human).  Eukaryota; Matazoa; Chordata; Craniata; Vertebrata; Euteleostco Mammalia; Eutheria; Primates; Catarrhin; Hominidae; Homo.  [1]  SEQUENCE FROM N.A.  MEDLINE; 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Erlen S.J., Modi W.S., Maciaq T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide seg and chromosome localization.";  Science 233:541-545(1986).  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM;  MEDLINE; 89343957.  Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues.";  Mang W.P., Lehtoma K., Varban W.A.  TISSUE-BRAIN STEM;  MEDLINE; 90265618  Chiu I.M., Wang W.P., Lehtoma K.;  Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";  Oncogene 5:755-762(1990).  [4]  SEQUENCE FROM N.A.  MEDLINE; 90073637.  MEDLINE; 90073637. | GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) (BERTA) BETRA Homo sapiens (Human). BURKAIYOTA: Metazoa: Chordata; Craniata; Vertebrata; Euteleostc Bukaryota: Eutherla; Primates; Catarrhini; Hominidae; Homo. [1] MEDLINE: 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; WEDLINE: 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; MEDLINE: BAOL. 9:2387-2395(1989). [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE: 90055618. Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor I."; oncogene 5:755-762(1990). [4] SECUENCE FROM N.A. MEDLINE: 90073637. | 15-701-1999 (Rel. 38, Last annotation update) 16-701-1999 (Rel. 38, Last annotation update) 16-701-1990 (Sepolement of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues 1 heparin-binding factor and its expression in fetal tissues. 1 heparin-binding factor and its expression in fetal tissues. 1 heparin-binding growth factor 1."; 15-701-1990 (Rel. 9:2387-2395(1989). 15-701-1990 (Rel. 9:2387-2395(1989). 15-701-1990 (Rel. 9:2387-2395(1989). 16-701-1990 (Rel. 9:2387-2395 | 13-AUG-1987 (Rel. 05, Last sequence update) 15-AUG-1987 (Rel. 05, Last sequence update) 15-AUG-1989 (Rel. 38, Last annotation update) 15-AUG-1989 (Rel. 38, Last annotation update) 15-AUG-1999 (Rel. 38, Last annotation update) 16-AUG-1999 (Rel. 38, Last annotation update) 17-AUG-1999 (Rel. 38, Last annotation update) 18-AUG-1999 (Rel. 38, Last annotation update) 19-AUG-1999 (Rel. 39, Last annotation update) 19-AUG-1999 (Rel. 30, Miller J., Mergia A., Tischer E., Graves D., Tumolo A., Miller J., Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 13-AUG-1987 (Rel. 05, Created) 13-AUG-1987 (Rel. 05, Last sequence update) 15-JUL-1998 (Rel. 138, Last annotation update)
15-JUL-1999 (Rel. 138, Last annotation update) 15-JUL-1990 (Rel. 138, Lenton update) 16-JUL-1990 (Rel. 1990) 16-JUL-1990 (Rel. 1990) 17-JUL-1990 (Rel. 1990) 18-JUL-1990 (Rel. 1990) 18-JUL-19 | P05230; P07502; 13-AUG-1997 (Rel. 05, Created) 13-AUG-1997 (Rel. 05, Last sequence update) 13-AUG-1997 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 38, Last annotation update) 15-JUL-1999 (Rel. 38, Maciag T., Drohan W.N.; 15-JUL-189 (N.S.) Maciag T., Maciag T., Drohan W.N.; 15-JUL-189 (N.S.) Maciag T., Maciag T., Lehtoma K., Varban W.L., Krishnan I., Chiu I.M.; 15-JUL-189 (M.S.) Maciag T., Mang W.P., Lehtoma K.; 15-JUL-189 (J.) Maciag T., Lehtoma K.; 15-JUL-189 (J.) Maciag T., Mang W.P., Lehtoma K.; 15-JUL-189 (J.) Maciag T., Maciagiag T | FGET HUMAN STANDARD; PRT; 155 AA. P05230; P07502; 13-AUG-1987 (Rel. 05, Created) 13-AUG-1987 (Rel. 05, Created) 13-AUG-1987 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 08, Last sequence update) 15-JUL-1999 (Rel. 08, Last sequence update) 15-AUG-1987 (Rel. 05, Last sequence update) 15-AUG-1987 (Rel. 08, Last sequence update) 15-AUG-1998 (Rel. 08, Last sequence update) 15-AUG-1998 (Rel. 08, Last sequence update) 16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | SEQUENCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          
                                                                                                                                                                                                                                                     | Oncogene 5:755-762(1990).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | heparin-binding growth<br>Oncogene 5:755-762(199                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | TISSUE-BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor I."; Oncogene 5:755-762(1990).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | [3] SEQUENCE FROM N.A. SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-76(1990).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Mol. Cell. Biol. 9:2387-2395(1989).  [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. Chlu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | factor and its expression in fetal tissues."; Mol. Cell. Biol. 9:2387-2395(1989). [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; Mol. Cell. Biol. 9:2387-2395(1989). [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; Alternative splicing generates two forms of mRNA coding for h heparin-binding growth factor 1."; Oncogene 5:755-76(1990).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Wang W.P., Lehtcoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; Mol. Cell. Biol. 9:2387-2395(1989). [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | MEDDINE; 89349357. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; Mol. Cell. Biol. 9:2387-2395(1989). [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for h heparin-binding growth factor 1."; Oncogene 5:755-76(1990).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | TISSUE-BRAIN STEM; MEDLINE; 89343957. Wang W.P., Lehtona K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; Mol. Cell. Biol. 9:2387-2395(1989). [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | SEQUENCE FROM N.A. TISSUE-BRIND STEM. MEDLINE; 89343957. MEDLINE; 89343957. Wang W.P., Lethtoma K., Varban M.L., Krishnan I., Chiu I.M.; Wang W.P., Lethtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; Mol. Cell. Biol. 9:2387-2395(1989). [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990).                                                                                                                                                     | [2] SEQUENCE FROM N.A. TISSUE=BRAIN STEM; MEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; MOI. Cell. Biol. 9:2387-2395(1989). TISSUE-BRAIN STEM; MEDLINE; 90265018. Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-761(1990).                                                                                                                                                                                                                                                                                                                                                                                  | Science 233:541-545(1986).  [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 89343957. Wang W.P., Lehtona K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; MADI Cell. Biol. 9:2387-2395(1989).  [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Science 233:541-545(1986).  Science 233:541-545(1986).  [2]  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM,  MEDLINE; 89343957.  Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues.";  "Cloning of the gene coding
for human class 1 heparin-binding factor and its expression in fetal tissues.";  MOI. Cell. Biol. 9:2387-2395(1989).  [3]  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM;  MEDLINE; 90265618.  Chiu I.M., Wang W.P., Lehtoma K.;  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";  Oncogene 5:755-762(1990).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | and chromosome localization."; Science 233:541-545(1986). [2] Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; WEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; MOI. Cell. Biol. 9:2387-2395(1989). [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990).                                                                                                                                                                                                           | "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986). [2] Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 89343957. Wang W.P., Lethcma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990).                                                                                                                                                | O'Brien S.J., Modi W.S., Mactag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide seg and chromosome localization.";  Science 233:541-545(1986).  [2] Science 233:541-545(1986).  [2] SEQUENCE FROM N.A.  TISSUE-BRAIN STEM; Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues.";  MOI. Cell. Biol. 9:2387-2395(1989).  TISSUE-BRAIN STEM; MEDLINE; 90265618.  Chiu I.M., Wang W.P., Lehtoma K.;  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-76(1990).                                                                                                                                                                                                                                                                                                       | Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization.";  Science 233:541-545(1986).  [2]  Science 233:541-545(1986).  [2]  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM;  MEDLINE; 89343957.  "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues.";  "Cloning of the gene coding for human class.";  "Cloning of the gene coding for human class.";  "Cloning of the gene for how the sequence of the gene for human class.";  MOI. Cell. Biol. 9:2387-2395(1989).  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM;  MEDLINE; 90265618.  Chiu I.M., Wang W.P., Lehtoma K.;  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";  Oncogene 5:755-762(1990).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Homo saptens (Human).  Bukaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleosto Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  [1]  SEQUENCE FROM N.A.  MEDLINE; 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O. Brien S.J., Modi W.S., Maciag T., Drohan W.N.; nucleotide seq and chromosome localization.";  Clence 233:541-545(1986).  [2]  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM;  MEDLINE; 89343957.  "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues.";  "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues.";  TISSUE-BRAIN STEM;  MOI. Cell. Biol. 9:2387-2395(1989).  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM;  MEDLINE; 90265618.  MEDLINE; 90265018.  Chiu I.M., Wang W.P., Lehtoma K.;  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";  Oncogene 5:755-762(1990).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | FORT VOR FUER.  Homo sapiens (Human).  Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostc  Mammalia; Eutherla; Primates; Catarrhini; Hominidae; Homo.  [1]  SEQUENCE FROM N.A.  MEDILNE; 86251805.  Jaye M. Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.  O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelala cell growth factor: cloning, nucleotide seq and chromosome localization.";  Clence 233:541-545(1986).  [2]  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM;  MEDILNE; 89343957.  "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues.";  "Cloning of the gene coding for human class 1, heparin-binding factor and its expression in fetal tissues.";  [3]  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM;  MEDILNE; 90265018  Chiu I.M., Wang W.P., Lehtoma K.;  "Alternative Splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";  Oncogene 5:755-762(1990).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               
                                                                                                                                                                                                                                                                                                                                                                                                                                                          | FORTH OR FGEA.  Homo sapiens (Human).  Bukaryota: Metazoa: Chordata; Craniata; Vertebrata; Euteleostc Bukaryota: Metazoa: Chordata; Craniata; Vertebrata; Euteleostc Mammalia: Etheria; Primates; Catarrhini; Hominidae; Homo.  [1] FORTH OR N.A.  MEDLINE: 86261805  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O. Brien S.J., Modi W.S., Maciag T., Drohan M.N.;  "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization.";  Colbrine S.J., Modi W.S., Maciag T., Drohan M.N.;  Science 233:541-545(1986).  [2] SEQUENCE FROM N.A.  TISSUE-BRAIN STEM;  MADLINE: 89443957,  Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues.";  "Alsource FROM N.A.  TISSUE-BRAIN STEM;  MEDLINE: 90365618  Chiu I.M., Wang W.P., Lehtoma K.;  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor I.";  Oncogene S:755-762(1990).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) (BERA-ENDOTHELIAL CELL GROWTH FACTOR) (BERTA. FGF1 OR FGFA. Homo sapiens (Human).  FGF1 OR FGFA. Homo sapiens (Human).  EUKARIYOTA: Metazoa: Chordata; Craniata; Vertebrata: Euteleostc Manmalia: Ethheria: Primates; Catarrhini: Hominidae; Homo. [1]  SEQUENCE FROM N.A. Maciag T., Drohan W.N.;  MEDLINE: 86261805.  JAYP M., HOWK R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothalial cell growth factor: cloning, nucleotide seq and chromosome localization.";  C'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  REDUINCE FROM N.A.  TISSUE-BRAIN STEM;  MEDLINE: 89343957.  Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  "CLOning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues.";  "CLOING Of the gene coding for human class 1.  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM;  MEDLINE: 90056518.  Chiu I.M., Wang W.P., Lehtoma K.;  "Alternative Splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";  Oncogene S:735-756-1090).                                                                                                                                                                                                                                                                                                                                                                                | 15-701-1999 (Rel. 38, Last annotation update) 15-701-1999 (Rel. 38, Last annotation update) 15-701-1999 (Rel. 38, Last annotation update) GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) GROWTH FACTOR) (AFGF)  FGF1 OR FGFA.  Homo sapiens (Human).  EGRING: Setheria; Primates; Catarrhini; Hominidae; Homo.  [1]  MEDLINE; 86261805  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciaq T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization.";  [2]  Science 233:541-545(1986).  [2]  Science 233:541-545(1986).  [2]  SCIENCE FROM N.A.  TISSUE-BRAIN STEM;  MEDLINE; 89343957.  WEDLINE; 89343957.  MEDLINE; 9026518.  TISSUE-BRAIN STEM;  MEDLINE; 90265018.  Chiu I.M., Wang W.P., Lehtoma K.;  Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";  Oncogene 5:755-762(1990).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 13-AUG-1987 (Rel. 05, Last sequence update) 15-AUG-1987 (Rel. 05, Last annotation update) 15-UL-1999 (Rel. 38, Last annotation update) 15-UL-1999 (Rel. 38, Last annotation update) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) HERTA.  FGF1 OR FGFA. HOME SEDENS (HUMEN).  EUKATYOCA: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammanila; Eutherla; Primates; Catarrhini; Hominidae; Homo.  SEQUENCE FROM N.A.  MEDLINE; B8261805.  JAYE M., HOWK W., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization.";  "Human endothelial cell growth factor: cloning, nucleotide science 233:541-545(1986).  [2]  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM;  MEDLINE; 89343957.  WADDINE; 89343957.  ALISSUE-BRAIN STEM;  TISSUE-BRAIN STEM;    | 13-AUG-1987 (Rel. 05, Created) 13-AUG-1987 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 38, Last annotation update) 16-JUL (Rel. 38, Last annotation update) 17-JUL (Rel. 37, Modi W.S., Maciag T., Drohan W.N.; 18-JUMAN endothelial cell growth factor: cloning, nucleotide and chromosome localization."; 17-JUL (Legument of the gene coding for human class 1 heparin-bindifactor and its expression in fetal tissues."; 17-JUL (Rel. 39343957) 17-JUL (Rel. 3919) 18-JUL (Rel. 3919591)                                                                                                                                                                                                                                                                                                                                                                                                                                             | P05230; P07502; 13-AUG-1987 (Rel. 05, Created) 13-AUG-1987 (Rel. 05, Last sequence update) 13-AUG-1989 (Rel. 03, Last sequence update) 13-AUG-1999 (Rel. 38, Last annotation update) 15-JUL-1999 (Rel. 38, Rel. 38, Rel. 38, Rel. 38, Rel. 38, Maciag T., Drohan W.N.; 17-MEDINE; 86201805. 17-SEQUENCE FROM N.A. 17-SEGUENCE FROM N.A. 17-SEGUENC | FGET HUMAN STANDARD; PRT; 155 AA. P07502; 13-AUG-1987 (Rel. 05, Created) 11-AUG-1987 (Rel. 05, Last sequence update) 11-AUG-1987 (Rel. 05, Last sequence update) 15-AUG-1987 (Regrature) 16-AUG-1987 ( |
| [4] SEQUENCE FROM N.A. MEDLINE; 90073637. METGIA A., Tischer E., Graves D., Tumolo A., Miller J., Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.; "Structural analysis of the gene for human acidic fibroblast                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          
                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | heparin-binding growth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | "Alternative splicing generates two forms of mRNA coding for<br>heparin-binding growth factor 1.";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.",                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | TISSUE-BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Mol. Cell. Biol. 9:2387-2395(1989). [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | factor and its expression in fetal tissues."; Mol. Cell. Biol. 9:2387-2395(1989). [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618 [Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; Mol. Cell. Biol. 9:2387-2395(1989). [3] SEQUENCE FROM N.A. TISSUE-BRIN STEM; MEDLINE; 90265618.  Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor l.";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Wang W.P., Lehtcoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; Mol. Cell. Biol. 9:2387-2395(1989). [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM, MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtcoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor l.";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | MEDLINE; 89349357. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; Mol. Cell. Biol. 9:2387-2395(1989). [3] EMCLEFROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618 "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | TISSUE-BRAIN STEM; MEDLINE; 8934997. Wang W.P., Lehtchma K., Varban M.L., Krishnan I., Chiu I.M.; Wang W.P., Lehtchma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; Mol. Cell. Biol. 9:2387-2395(1989). [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 9343957. MEDLINE; 9343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; MOI. Cell. Biol. 9:2387-2395(1989). [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-banding growth factor 1.";                                                                                                                                                                                                                                               | [2] SEQUENCE FROM N.A. TISSUE=BRAIN STEM; MEDLINE; 8934957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; Mol. Cell. Biol. 9:2387-2395(1989). [3] SEQUENCE FROM N.A. TISSUE=BRAIN STEM; MEDLINE; 90265618. "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";                                                                                                                                                                                                                                                                                                                                                                                                                        | Science 233:541-545(1986).  [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 89343957. Wang W.P., Lehtcma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; "Coll Biol. 9:2387-2395(1989).  [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. "Alternative splicing generates two forms of mRNA coding for heparin-binding generates two                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Science 233:541-545(1986).  Science 233:541-545(1986).  [2] SEQUENCE FROM N.A. TISSUE=BRAIN STEM, MEDDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; MOI. Cell. Biol. 9:2387-2395(1989).
 [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618 "Alternative splicing generates two forms of mRNA coding for heparin-binding generates two                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | and chromosome localization."; Science 233:541-545(1986). [2] Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; WADDLINE; 89343957. WAND W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; "Coll. Biol. 9:2387-2395(1989). [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";                                                                                                                                                                                                                                        | "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; MOI. Cell. Biol. 9:2387-2395(1989). SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";                                                                                                                                                                                                                                                                                     | O'Brien S.J., Modi W.S., Mactag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide seg and chromosome localization.";  Science 233:541-545(1986).  [2] Science 233:541-545(1986).  [2] SEQUENCE FROM N.A.  TISSUE=BRAIN STEM; WADDINE; 89343957. WAND W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues.";  MOI. Cell. Biol. 9:2387-2395(1989).  [3] SEQUENCE FROM N.A.  TISSUE=BRAIN STEM; MEDLINE; 90265618.  "Alternative splicing generates two forms of mRNA coding for heparin-binding generates two                                                                                                                                                                                                                                                                                                                             | Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide segand chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; "Cloning of the gene coding for human class 1 heparin-binding Mol. Cell. Biol. 9:2387-2395(1989). [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Homo Saptens (Human).  Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleosto Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  [1]  SEQUENCE FROM N.A.  MEDLINE; 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization.";  Science 233:541-545(1986).  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM;  MEDLINE; 89343957.  Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues.";  MEDLINE; 80265618.  SEQUENCE FROM N.A.  TISSUE-RRAIN STEM;  MEDLINE; 90265618.  Chiu I.M., Wang W.P., Lehtoma K.;  Alternative splicing generates two forms of mRNA coding for heparin-binding generates two                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Fort We Fork.  Homo sapiens (Human).  Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostc  Bammalia; Eutherla; Primates; Catarrhini; Hominidae; Homo.  [1]  SEQUENCE FROM N.A.  MEDLINE; 86201805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.  O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothablal cell growth factor: cloning, nucleotide sequand chromosome localization.";  Science 233:541-545(1986).  [2]  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM;  MMDDLINE; 8434957,  MMDG W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues.";  MOL. Cell. Biol. 9:2387-2395(1989).  [3]  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM;  MEDLINE; 90265618  MADLINE; 90265618  "Alternative splicing generates K.;  "Alternative splicing generates K.;  "Alternative splicing generates I.;  heparin-binding growth factor I.";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      
                                                                                                                                                                                                                                                                                                                                                                                                                                                       | FORTH OR FGFA.  Homo sapiens (Human).  Homo sapiens (Human).  Bukaryota: Matazoa: Chordata; Craniata; Vertebrata; Euteleostc Bukaryota: Matezoa: Chordata; Catarrhini; Hominidae; Homo.  (1)  SEQUENCE FROM N.A.  MEDLINE; 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization.";  Science 233:541-545(1986).  (2)  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM;  MEDLINE; 89343957.  Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues.";  MEDLINE; 80265618.  (Chiu I.M., Wang W.P., Lehtoma K.;  Alternative splicing generates two forms of mRNA coding for heparin-binding generates 1.";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) (BERA-ENDOTHELIAL CELL GROWTH FACTOR) (BERTA-BERTA)  FGF1 OR FGFA.  Homo sapiens (Human).  Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostc Gammania; Eutheria; Primates; Catarrhini; Hominidae; Homo.  [1] Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostc Gammania; Eutheria; Primates; Catarrhini; Hominidae; Homo.  [2] Expure FROM N.A.  MEDLINE; 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O. Farien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization.";  [2] SEQUENCE FROM N.A.  TISSUE-BRAIN STEM;  MEDLINE; 89343957.  WAND W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  "Cloning of the gene coding for human class I heparin-binding for human class I heparin-binding generates K.;  Chiu I.M., Wang W.P., Lehtoma K.;  "Alternative splicing generates two forms of mRNA coding for heparin-binding generates I.";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 15-701-1999 (Rel. 38, Last annotation update) 15-701-1999 (Rel. 38, Last annotation) 10-701-1999 (Rel. 38, Last annotation) 10-701-1999 (Rel. 38, Last annotation) 10-701-1999 (Rel. 38, Lel. 39, Rel. 39, | 13-AUG-1987 (Rel. 05, Last sequence update) 15-AUG-1987 (Rel. 05, Last sequence update) 15-UUL-1999 (Rel. 38, Last annotation update) 15-UUL-1999 (Rel. 38, Last annotation update) 15-AUG-1999 (Rel. 38, Last annotation update) 16-AUG-1999 (Rel. 38, Last annotation update) 17-AUG-1999 (Rel. 38, Last annotation update) 18-AUG-1999 (Rel. 38, Leptona  | 13-AUG-1987 (Rel. 05, Created) 13-AUG-1987 (Rel. 05, Last sequence update) 15-AUG-1998 (Rel. 08, Last annotation update) 15-JUL-1999 (Rel. 08, Letter 18, Letter 18, Letter 18, Letter 18, Letter 18, Letter 19, Letter | P05230; P07502; 13-AUG-1987 (Rel. 05, Created) 13-AUG-1987 (Rel. 05, Last sequence update) 13-AUG-1987 (Rel. 05, Last sequence update) 13-AUG-1989 (Rel. 38, Last annotation update) 15-JUL-1999 (Rel. 38, Last annotation update) 16-JUL-1899 (Rel. 38, Last annotation update) 17-JUL-1999 (Rel. 38, Maciar Craniata, Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhin; Hominidae; Homo. 17-JUL-1999 (Rel. 38, Maciar T., Drohan W.N.; 18-JUL-1999 (Rel. 38, Maciar T., Rrishnan I., Chiu I.M.; 18-JUL-1999 (Rel. 48, Maciar T., Rrishnan I., Chiu I.M.; 18-JUL-1999 (Rel. 48, Maciar T., Rrishnan I., Chiu I.M.; 19-JUL-1999 (Rel. 49, Maciar T., Rel. 49, Maciar L., Rel. 49, Maciar L., Rel. 41, Maciar M.N.) 19-JUL-1999 (Rel. 49, M.S.)                                                                                                                                                                                                                                                                                                                                                                                                                                                              | FGTI HUMAN STANDARD; PRT; 155 AA. P05230; P07502; 13-AUG-1987 (Rel. 05, Created) 13-AUG-1987 (Rel. 05, Last sequence update) 15-AUG-1987 (Ref. 08) 15-AUG- |
| MEDLINE; 86261805.  Jayo M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization.";  Science 233:541-545(1986).  [2]  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM,  MEDLINE; 89343957.  Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues.";  "Cloning of the gene coding for human class 1 heparin-binding Mol. Cell. Biol. 9:2387-2395(1989).  [3]  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM;  MEDLINE; 90265618.  "Alternative splicing generates two forms of mRNA coding for hheparin-binding growth factor 1.";  Oncogene 5:755-762(1990).  SEQUENCE FROM N.A.  REDLINE; 90073637.  Mergia A., Tischer E., Graves D., Tumolo A., Miller J., Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;  Structural analysis of the gene for human acidic fibroblast g                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | MEDLINE: 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide segand chromosome localization.";  "Glence 233:541-545(1986).  [2] Science 233:541-545(1986).  [2] Science 233:541-545(1986).  [3] TISSUE-BRAIN STEM;  WADD W.P., Lehtcma K., Varban M.L., Krishnan I., Chiu I.M.;  "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues.";  "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues.";  "Cloning Josephession in fetal tissues.";  MEDLINE: 90255618.  Chiu I.M., Wang W.P., Lehtcma K.;  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";  Oncogene 5:755-762(1990).  [4]  SEQUENCE FROM N.A.  MEDLINE: 90073637.  MEDLINE: 90073637.  MEDLINE: JONGS E., Graves D., Tumolo A., Miller J.,  MEDLINE: Alischer E., Graves D., Tumolo A., Miller J.,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | MEDLINE; 86261805.  Jayo M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide segand chromosome localization.";  Science 233:541-545(1986).  [2]  SEQUENCE FROM N.A.  TISSUE=BAIN STEM,  MEDLINE; 89343957.  Wang W.P., Lehtcma K., Varban M.L., Krishnan I., Chiu I.M.;  "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues.";  "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues.";  [3]  SEQUENCE FROM N.A.  TISSUE=BAIN STEM;  MEDLINE; 90265018.  Chiu I.M., Wang W.P., Lehtcma K.;  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";  oncogene 5:755-762(1990).  SEQUENCE FROM N.A.  SEQUENCE FROM N.A.  SEQUENCE FROM N.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | MEDLINE; 86261805.  Jayo M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization.";  Science 233:541-545(1986).  [2]  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM,  MEDLINE; 89343957.  Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues.";  MOI. Cell. Biol. 9:2387-2395(1989).  TISSUE-BRAIN STEM;  MEDLINE; 90265618.  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";  "Alternative splicing generates two forms of mRNA.  Chiding Growth factor 1.";  Chicker FROM N.A.  TISSUE-BRAIN STEM;  MEDLINE; 90265618.  "Alternative splicing generates two forms of mRNA.  "Alternative FROM N.A.  [4]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; WEDLINE; 89343957. "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; "Cloning of the gene coding for human class." heparin-binding factor and its expression in fetal tissues."; "Cloning of the gene Koding for human class." heparin-binding factor and its expression in fetal tissues."; "Aloning of the gene for human class." heparin-binding factor and growth factor human class." heparin-binding generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            
                                                                                                                                                                                                                                                     | MEDLINE: 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization.";  Science 233:541-545(1986).  [2] Estence 233:541-545(1986).  [2] Estence 233:541-545(1986).  [2] Estence EROM N.A.  TISSUE=BRAIN STEM;  MEDLINE; 89343957.  "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues.";  MOI. Cell. Biol. 9:2387-2395(1989).  [3] SEQUENCE FROM N.A.  TISSUE=BRAIN STEM;  MEDLINE; 9056518.  Chu I.M., Wang W.P., Lehtoma K.;  Alternative splicing generates two forms of mRNA coding for halternative splicing generates two                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | MEDLINE; 86261805.  Jayo M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide segand chromosome localization.";  Science 233:541-545(1986).  [2]  SEQUENCE FROM N.A.  TISSUE=BRAIN STEM;  MEDLINE; 89343957.  "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues.";  "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues.";  [3]  SEQUENCE FROM N.A.  TISSUE=BRAIN STEM;  MEDLINE; 9026518.  Chiu I.M., Wang W.P., Lehtoma K.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | MEDLINE: 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization.";  Science 233:541-545(1986).  [2]  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM;  MEDLINE: 89343957.  Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues.";  MOI. Cell. Biol. 9:2387-2395(1989).  [3]  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM;  MEDLINE; 90265618.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; Ruman endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; Mol. Cell. Biol. 9:2387-2395(1989). TISSUE-BRAIN STEM, TISSUE-BRAIN STEM,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | MEDLINE: 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide segand chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM. MEDLINE: 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; SEQUENCE FROM N.A. SEQUENCE FROM N.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | MEDINE; 86261805. Jayo M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; I Human endothelial cell growth factor: cloning, nucleotide seq and cromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM, MEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; MOI. Cell. Biol. 9:2387-2395(1989).                                                                                                                                                                                                                                                                                                                                                                                                                                                     | MEDLINE: 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization.";  Science 233:541-545(1986).  [2]  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM;  MEDLINE: 89343957.  Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues.";  MOI. Cell. Biol. 9:2387-2395(1989).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | MEDLINE: 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide segand chromosome localization."; Science 233:541-545(1986). [2] [2] Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEW. MEDLINE: 89343957. "Choning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues.";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | MEDLINE: 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization.";  Science 233:541-545(1986).  [2]  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM;  MEDLINE: 89343957.  Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  "Cloning of the gene coding for human class 1 heparin-binding                                                                                                                                                                                                                                                                                                                                                                                                                                                               | MEDLINE: 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization.";  Science 233:541-545(1986).  [2]  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM;  MEDLINE: 89343957.  Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | MEDLINE: 86261805. MEDLINE: 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; Science 233:541-545(1986). [2] SCIENCE EROM N.A. SEQUENCE FROM N.A. MEDLINE; 89343957.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | MEDLINE: 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE=BRAIN STEM;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | MEDLINE: 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; Science 233:541-545(1986).  [2]  SEQUENCE FROM N.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | MEDLINE: 86261805. MEDLINE: 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; Science 233:541-545(1986).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver W. Perien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; Science 233:541-545(1986).                                                                                                                                                                                                                                                                                                                                                                                                                     | MEDLINE: 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome_localization.";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | MEDLINE: 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | MEDLINE: 86261805.<br>Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver<br>O'Brien S.J., Modi W.S., Maciag I., Drohan W.N.;<br>"Human endothelial cell growth factor: cloning uncledifde                                                                                                                                 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | MEDLINE: 86261805.<br>Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM.,<br>O'Brien S.J., Modi W.S., Maciaq T., Drohan W.N.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | MEDLINE; 86261805.<br>Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM.,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | MEDLINE; 86261805.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Homo sapiens (Human).<br>Eukaryota; Metazoa; Chordata;<br>Mammalia; Eutheria; Primates;<br>[1]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Fort OK Ford. Homo sapiens (Human). Eukaryota; Metazoa; Chordata; Mammalia; Eutheria; Primates; [1]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  
                                                                                                                                                                                                                                                                                                                                                                                                                                                       | FGF1 OR FGFA. Homo sapiens (Human). Bukaryota; Metazoa; Chordata; Mammalla; Eutherla; Primates;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA).  FGF1 OR FGFA.  Homo sapiens (Human).  ENKALYOCA; Metazoa; Chordata; Craniata; Vertebrata; Euteleos Mammalla; Eutherla; Primates; Catarrhini; Hominidae; Homo.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 15-702-1999 (Rel. 38, Last annotation update) 15-702-1999 (Rel. 38, Last annotation update) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) GROWTH FACTOR) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) FGF1 OR FGFA. Homo sapiens (Human). Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Bukaryota: Eutheria; Primates; Catarrhini; Hominidae; Homo.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 13-AUG-1987 (Rel. 05, Last sequence update) 15-AUG-1987 (Rel. 08, Last sequence update) 15-AUL-1999 (Rel. 38, Last annotation update) 15-AUL-1999 (Rel. 38, Last annotation update) 15-AUL-1999 (Rel. 38, Last Encorners of HBGF-1) (ACIDIC GROWTH PACTOR) 15-AUL-1999 (Rel. 08-CONTH FACTOR) 16-AUL-1999 (Rel. 08-CONTH FACTOR) 17-AUL-1999 (Rel. 08-CONTH FACTOR) 18-AUL-1999 (Rel. 08-CONTH FACTOR) 18-AUL-199 | 13-AUG-1987 (Rel. 05, Created) 13-AUG-1987 (Rel. 05, Last sequence update) 15-JUL-19987 (Rel. 38, Last annotation update) 15-JUL-1999 (Rel. 38, Last annotation update) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA). FGF1 OR FGFA. HOMO sapiens (Human). Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | P05230; P07502; 13-M0G-1987 (Rel. 05, Created) 13-AUG-1997 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 38, Last annotation update) 15-JUL-1999 (Rel. 38, Last annotation update) GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) GROWTH FACTOR 1 (BETA-ENDOTHELIAL CELL GROWTH FACTOR) FGF1 OR FGFA. HOMO sapiens (Human). Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Eutelec Bukaryota; Eutheria; Primates; Catarrhini; Hominidae; Homo.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | FGTI HUMAN STANDARD; PRT; 155 AA.
P07502; 13-AUG-1997 (Rel. 05, Created) 13-AUG-1997 (Rel. 05, Last sequence update) 13-AUG-1999 (Rel. 05, Last sequence update) 15-AUG-1999 (Rel. 05, Last sequence update) 15-AUG-1999 (Rel. 08, Last annotation update) 15-AUG-1999 (Rel. 08, Last Ennotation update) 15-AUG-1999 (Rel. 08, Last Ennotation update) 15-AUG-1999 (Rel. 08, Last Enter Enter 10, Refr.) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) 16-ETA). Homo sapiens (Human). Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| SEQUENCE FROM N.A.  MEDLINE: 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O. Brien S.J. Modi W.S., Maciag T., Drohan W.N.;  O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization.";  Science 233:541-545(1986).  [2]  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM;  WADDLINE; 8934357.  Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues.";  MADLINE: 8934357.  WAND W.P., Lehtoma K., Lehtoma K.;  Alternative Splicing generates two forms of mRNA coding for heparin-binding growth factor I.";  Oncogene 5:755-762(1990).  SEQUENCE FROM N.A.  MEDLINE; 9026518.  Alternative Splicing generates two forms of mRNA coding for heparin-binding growth factor I.";  Oncogene 5:755-762(1990).  [4]  SEQUENCE FROM N.A.  MEDLINE: 90303637.  Mergia A., Tischer E., Graves D., Tumolo A., Miller J., Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;  Sitter ctural analysis of the gene for human acidic fibroblast g                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O. Brien S.J., Modi W.S., Maciag T., Drohan W.N.; O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986).  Science 233:541-545(1986).  TISSUE-BRAIN STEM; Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; MADLINE; 89343957. WAND W.P., Lehtoma K., Passues."; MALE ISSUE-BRAIN STEM; MEDLINE; 9026518.  Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990).  [4] SEQUENCE FROM N.A. MEDLINE; 90073637. METGIAL SOURCE FROM N.A. MEDLINE; 90073637.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | SEQUENCE FROM N.A.  MEDLINE: 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O'Erien, S.J., Modi W.S., Macdag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization.";  Science 233:541-545(1986).  [2] SEQUENCE FROM N.A.  TISSUE-BRAIN STEM; WADDINE: 89343957. WAND W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues.";  "Cloning of the gene coding for human class I heparin-binding mol. Cell. Biol. 9:2387-2395(1989).  TISSUE-BRAIN STEM; WADDINE: 90265618.  TISSUE-BRAIN STEM; MEDLINE: 90265618.  Chiu I.M., Wang W.P., Lehtoma K.;  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";  Oncogene S.755-762(1990).  SEQUENCE FROM N.A.  SEGUENCE FROM N.A.  SEGUENCE FROM N.A.  TISSUE-REALINE: 90265618  Chiu I.M., Wang W.P., Lehtoma K.;  Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";  Oncogene S.755-762(1990).  SEGUENCE FROM N.A.  SEGUENCE FROM N.A.  SEGUENCE FROM N.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | SEQUENCE FROM N.A. MEDLINE: 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O. Prien S.J. Modi W.S., Maciag T., Drohan W.N.; O'Erien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; WADDLINE; 8934357. WAND W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; MOI Cell. Biol. 9:2387-2395(1989). [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Chocogene 5:755-762(1990).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O. Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986).  Science 233:541-545(1986).  SEQUENCE FROM N.A. TISSUE-BRAIN STEM; WEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; MEDLINE; 8026518.  [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; Chiu I.M., Wang W.P., Lehtoma K.; Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 
                                                                                                                                                                                                                                                     | SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O. Brien S.J., Modi W.S., Maciag T., Drohan W.N.; O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986).  Science 233:541-545(1986).  TISSUE-BRAIN STEM; WEDLINE; 89343957. Wang W.P., Lehtcma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; MOI. Cell. Biol. 9:2387-2395(1989).  SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618.  Chiu I.M., Wanng W.P., Lehtcma K.; Chiu I.M., Wanng W.P., Lehtcma K.; Alternative splicing generates two forms of mRNA coding for h                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | SEQUENCE FROM N.A. MEDLINE: 86261805. JAYP M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien, S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE: 89343957, Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; MOI. Cell. Biol. 9:2387-2395(1989). TISSUE-BRAIN STEM; MEDLINE: 90265018. Chiu I.M., Wang W.P., Lehtoma K.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O'Erien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; WEDLINE; 8934357. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; MOI. Cell. Biol. 9:2387-2395(1989). [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O. Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE=BRAIN STEM; WEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; MOI. Cell. Biol. 9:2387-2395(1989). TISSUE-BRAIN STEM, TISSUE-BRAIN STEM,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | SEQUENCE FROM N.A. MEDLINE; 86261805. JAYP M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM, MEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; MOI. Cell. Biol. 9:2387-2395(1989). [3] SEQUENCE FROM N.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | SEQUENCE FROM N.A. MEDLINE; 86261805. JAYP M., BOWK R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Erien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE=BRAIN STEM; MEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; Mol. Cell. Biol. 9:2387-2395(1989).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O. Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; MOI. Cell. Biol. 9:1287-2395(1989).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | SEQUENCE FROM N.A. MEDLINE; 86261805.  JAYP M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothbalal cell growth factor: cloning, nucleotide seq and chromosome localization.";  Science 233:541-545(1986).  [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM, MEDLINE; 89343957.  Wang W.P., Lehtcma K., Varban M.L., Krishnan I., Chiu I.M.;  "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues.";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | SEQUENCE FROM N.A. MEDLINE: 86261805. JAYP M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE=BRAIN STEM; MEDLINE; 89343957. WARD W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding                                                                                                                                                                                                                                                                                                                                                                                                                                                     | SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seg and chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | SEQUENCE FROM N.A.  SEQUENCE FROM N.A.  MEDLINE; 89261808 W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial ceal growth factor: cloning, nucleotide and chromosome localization."; Science 233:541-545(1986).  [2]  SEQUENCE FROM N.A.  TISSUE—BRAIN STEM; MEDLINE; 89343957.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | SEQUENCE FROM N.A.  MEDLINE; 8626180.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endochhelial cell growth factor: cloning, nucleotide and chromosome localization.";  Science 233:541-545(1986).  [2]  [2]  [2]  [2]  TISSUE=BRAIN STEM;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | SEQUENCE FROM N.A.  SEQUENCE FROM N.A.  JAYO M., HOWK R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization.";  Science 233:541-545(1986).  [2]  SEQUENCE FROM N.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | SEQUENCE FROM N.A. MEDLINE; 86261802 N.A. JAYP M., HOWK R., Burgess W., Ricca G.A., Chiu IM., Raver JAYP M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; Science 233:541-545(1986).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | SEQUENCE FROM N.A.  MEDLINE; 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization.";  Science 233:541-545(1986).                                                                                                                                                                                                                                                                                                                                                                                                                                                          | SEQUENCE FROM N.A. MEDLINE; 86261805. JABOLINE; 86261805. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization.";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | SEQUENCE FROM N.A. MEDILINE, 80261807. MEDILINE, 80261807. JAYPE M., HOWK R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | SEQUENCE FROM N.A.  SEQUENCE FROM N.A.  MEDLINE: 862661805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.).  "Human endothelial cell growth factor. Cloning uncleatifde                                                                                             
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | SEQUENCE FROM N.A.<br>MEDLINE; 86261805.<br>Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM.,<br>O'Brien S.J., Modi W.S., Maciaq T., Drohan W.N.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | SEQUENCE FROM N.A.<br>MEDLINE; 8620805.<br>Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM.,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | SEQUENCE FROM N.A. MEDLINE; 86261805.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | SECUENCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Homo Sapiens (Human).<br>Eukaryota: Metazoa; Chordata;<br>Mammalla; Eutherla; Primates;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | For OK Form,<br>Homo sapiens (Human),<br>Eukaryota, Metazoa, Chordata,<br>Mammalia, Eutheria, Primates;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              
                                                                                                                                                                                                                                                                                                                                                                                                                                                       | FEF1 OR FGFA. HOMO sapiens (Human). Eukaryota; Metazoa; Chordata; Mammalia; Eutheria; Primates;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA). FGF1 OR FGFA. HOMO sapiens (Human). Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleos Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 15-700-1999 (Rel. 38, Last annotation update) 15-701-1999 (Rel. 38, Last annotation update) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA. FGF1 OR FGFA. Homo saplens (Human). FGR4 OR FGFA. Homo saplens (Human). Homosaplens (Human). Homosaplens (Betaraca; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 13-AUG-1987 (Rel. 05, Last sequence update) 15-JUL-1989 (Rel. 38, Last annotation update) 15-JUL-1999 (Rel. 38, Last annotation update) 15-JUL-1999 (Rel. 38, Last annotation update) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) BETA). FGF1 OR FGFA. HOMO Sapiens (Human). Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 13-AUG-1987 (Rel. 05, Created) 13-AUG-1987 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 38, Last annotation update) 15-JUL-1999 (Rel. 38, Last annotation update) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) FGF1 OR FGFA. HOMO Saplens (Human). FGRI OR FGFA. HOMO Saplens (Human). HOMO Saplens (Human). HOMO Saplens (Human).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | P05230; P07502; 13-AUG-1987 (Rel. 05, Created) 13-AUG-1987 (Rel. 05, Last sequence update) 15-AUG-1989 (Rel. 38, Last annotation update) 15-JUL-1999 (Rel. 38, Last annotation update) 15-JUL-1999 (Rel. 38, Last annotation update) GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA. FGF1 OR FGFA. Homo sapiens (Human). FGR1 OR FGFA. Mammalia: Eutheria; Primates; Craniata; Vertebrata; Eutelec                                   
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | FGEL_HUMAN STANDARD; PRT; 155 AA. P05230; P07502; 13-AUG-1987 (Rel. 05, Created) 13-AUG-1987 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 05, Last annotation update) 15-JUL-1999 (Rel. 38, Last annotation update) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA). FGF1 OR FGFA. HOMO Sapiens (Human). Eukaryota: Metazoa: Chordata; Craniata; Vertebrata; Eutelec Mammalia: Eutheria; Primates; Catarrhini; Hominidae; Homo.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| MEDLINE; 86261805.  MEDLINE; 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization.";  Science 233:541-545(1986).  Science 233:541-545(1986).  TISSUE-BRAIN STEM;  MEDLINE; 89343957.  Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  "Cloning of the gene cooling for human class I heparin-binding factor and its expression in fetal tissues.";  MOI. Cell. Biol. 9:2387-2395(1989).  [3]  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM;  MEDLINE; 90265618.  Chiu I.M., Wang W.P., Lehtoma K.;  Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor I.";  Oncogene 5:755-762(1990).  [4]  SEQUENCE FROM N.A.  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor I.";  Oncogene 5:755-762(1990).  [6]  SEQUENCE FROM N.A.  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor I.";  Oncogene 5:755-762(1990).  [6]  SEQUENCE FROM N.A.  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor I.";  Oncogene 5:755-762(1990).  [7]  SEQUENCE FROM N.A.  SEQUENCE FROM N.A.  "Alternative splicing growth factor I.";  Oncogene 5:755-762(1990).  [8]  SEQUENCE FROM N.A.  "Alternative splicing growth factor I.";  Oncogene 5:755-762(1990).  [8]  SEQUENCE FROM N.A.  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor I.";  SEQUENCE FROM N.A.  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor I.";  SEQUENCE FROM N.A.  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor I.";  SEQUENCE FROM N.A.  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor I.";  SEQUENCE FROM N.A.  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor I.";                              | MEDLINE: 86261805. MEDLINE: 86261805. MEDLINE: 86261805. JAYe M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelal all cell growth factor: cloning, nucleotide seq and chromosome localization."; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; "Alternative Splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; "Alternative Splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; "Alternative Splicing generates two forms of mRNA medium Scoulence Errow N.A. "Alternative Splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; "Alternative Splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; "Alternative Splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; "Alternative Splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; "Alternative Splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; "Alternative Splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; "Alternative Splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; "Alternative Splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; "Alternative Splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; "Alternative Splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; "Alternative Splicing   | EQUENCE FROM N.A.  MEDLINE; 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization.";  "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization.";  Science 233:541-545(1986).  [2]  Science 233:541-545(1986).  [2]  Science 233:541-545(1986).  [3]  Science 233:541-545(1986).  [4]  TISSUE=BRAIN STEM;  MEDLINE; 89343957.  "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues.";  "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues.";  "Cloning of the gene coding for human class 1 heparin-binding for heparin-binding growth factor 1.";  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";  Oncogene 5:755-762(1990).  SEQUENCE FROM N.A.  SEGUENCE FROM N.A.  SEGUENCE FROM N.A.  SEGUENCE FROM N.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ESCUENCE FROM N.A. MEDLINE; 86261805. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Unan endothelial cell growth factor: cloning, nucleotide sequed chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSGE-BRAIN STEM; MEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; MEDLINE; 8936518. [3] SEQUENCE FROM N.A. TISSGE-BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | MEDLINE; 86261805. MEDLINE; 86261805. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelala cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 89343957. "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; MOI. Cell. Biol. 9:2387-2395(1989). TISSUE-BRAIN STEM; MEDLINE; 90265618. Chu I.M., Wang W.P., Lehttoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           
                                                                                                                                                                                                                                                     | LISCOUENCE FROM N.A. MEDLINE; 86261805. JAYE M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O. Brien S.J., Modi W.S., Maciag T., Drohan W.N.; O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelala cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986).  [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 89343957. "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; MOI. Cell. Biol. 9:2387-2395(1989).  [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. Chu I.M., Wanng W.P., Lehttoma K.; Alternative splicing generates two forms of mRNA coding for h                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | LEGUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; SEQUENCE FROM N.A. TISSUE=BRAIN STEM; MEDLINE; 89343957. Wang W.P., Lehtcma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; [3] SEQUENCE FROM N.A. TISSUE=BRAIN STEM; MEDLINE; 9026518. Chiu I.M., Wang W.P., Lehtcma K.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | LISUELERROM N.A.  MEDLINE; 86261805.  MEDLINE; 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide segand chromosome localization.";  Science 233:541-545(1986).  [2]  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM;  MEDLINE; 89343957.  Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues.";  MOI. Cell. Biol. 9:2387-2395(1989).  [3]  TISSUE-BRAIN STEM;  MEDLINE; 90265618.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | LISCOUENCE FROM N.A. MEDLINE; 86261805. MEDLINE; 86261805. JAye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O. Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; MCDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., frishnan is conjng of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; MOI. Cell. Biol. 9:2387-2395(1989). TISSUE-BRAIN STEM, TISSUE-BRAIN STEM,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | LISCUENCE FROM N.A. MEDLINE; 86261805. JAYO M., HOWAR R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; nucleotide seq and chromosome localization."; Clence 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; [3] SEQUENCE FROM N.A. SEQUENCE FROM N.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | [1] SEQUENCE FROM N.A. MEDLINE; 86261805. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; MOI. Cell. Biol. 9:2387-2395(1989).                                                                                                                                                                                                                                                                                                                                                                                                                                                            | LISEQUENCE FROM N.A. MEDLINE; 86261805. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; C'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986).  [2] SEQUENCE FROM N.A. TISSME-BRAIN STEM; MEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; MOI. Cell. Biol. 9:1287-2395(1989).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | L15 SEQUENCE FROM N.A. MEDLINE; 86261805. JAYO M., HOWK R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; ucleotide seq and chromosome localization."; Claic 233:541-545(1986). SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues.";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | [1] SEQUENCE FROM N.A. MEDLINE; 86261805. JAYE M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide sequand chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE=BRAIN STEM; MEDLINE; 89343957. WARDINE; 89343957. WARDINE; ROM S., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding                                                                                                                                                                                                                                                                                                                                                                                                                                    | L1 SEQUENCE FROM N.A. MEDLINE; 86261805. MEDLINE; 86261805. JAYe M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | LUBURINE: 86261805.  MEDLINE: 86261805.  JAYPA M., HOWK R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization.";  Science 233:541-545(1986).  [2]  SCOURNE FROM N.A.  FISSUE—BRAIN STA.  MEDLINE: 89343957.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | LLI<br>SEQUENCE FROM N.A.<br>MEDLINE: 86261805.<br>Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver<br>O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;<br>O'Brien Gordhelial cell growth factor: cloning, nucleotide<br>and chromosome localization.";<br>Science 233:541-545(1986).<br>[2]<br>SEQUENCE FROM N.A.<br>TISSUE=BRAIN STEM;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | LLI<br>BEQUENCE FROM N.A.<br>MEDLINE; 86261805.<br>JAYPA M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver<br>J. Brien S.J., Modi W.S., Maciag I., Drohan W.N.;<br>"Human endothelial cell growth factor: cloning, nucleotide<br>and chromosome localization.";<br>Science 233:541-545(1986).<br>SEQUENCE FROM N.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | L1 SEQUENCE FROM N.A. MEDIJUE: 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; Science 233:541-545(1986).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | LUBULUE FROM N.A. MEDILNE: 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; Science 233:541-545(1986).                                                                                                                                                                                                                                                                                                                                                                                                                                                               | L1 L1 MEDLINE; 86261805. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization.";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | EQUENCE FROM N.A. MEDLINE: 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | LILL REQUENCE FROM N.A. MEDLINE: 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Sbrien S.J., Modi W.S., Maciag T., Drohan W.N., "Human endothelial cell arouth factor. Cloning uncleating                                                                                                                 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | L1J SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., O'Brien S.J., Modi W.S., Maciaq T., Drohan W.N.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | [1]<br>SEQUENCE FROM N.A.<br>MEDLINE; 86261805.<br>Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM.,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | [1]<br>SEQUENCE FROM N.A.<br>MEDLINE: 86261805.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | SEQUENCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Homo sapiens (Human),<br>Eukaryota; Metazoa; Chordata;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Homo sapiens (Human).<br>Bukaryota: Metazoa; Chordata;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               
                                                                                                                                                                                                                                                                                                                                                                                                                                                       | FGF1 OR FGFA.<br>Homo sapiens (Human).<br>Eukaryota: Metazoa; Chordata;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA). HOTO RGFA. HOMO sapiens (Human). Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleos                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 15-700-1999 (Rel. 03, Last annotation update) 15-701-1999 (Rel. 38, Last annotation update) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA). FGF1 OR FGFA. Homo sapiens (Human). Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Eutelec                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 13-AUG-1987 (Rel. 05, Last sequence update) 15-AUG-1987 (Rel. 05, Last annotation update) 15-UUL-1999 (Rel. 38, Last annotation update) 15-BEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA). FGF1 OR FGFA. Homo sapiens (Human). Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Eutelec                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 13-AUG-1987 (Rel. 05, Created) 13-AUG-1987 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 38, Last sequence update) 15-JUL-1999 (Rel. 38, Last annotation update) HEPARIN-BINDING GROWHH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA). BETA). HOMO Saplens (Human). Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Eutelec                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | P05230; P07502; 13-AuG-1987 (Rel. 05, Created) 13-AuG-1987 (Rel. 05, Last sequence update) 15-AuG-1987 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 38, Last annotation update) HERRIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA) FGF1 OR FGFA. FGF1 OR FGFA. FGFA. FGFA. FGFA. FGFA. FGFA. FGFA. FGFA. FGFA. FGA. FG                                                    
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | FGEL HUMAN STANDARD; PRT; 155 AA. P05121 HUMAN STANDARD; PRT; 155 AA. P05230; P05230; P0522; 13-AUG-1987 (Rel. 05, Created) 13-AUG-1987 (Rel. 05, Last sequence update) 15-AUG-1999 (Rel. 05, Last annotation update) 15-UL-1999 (Rel. 05, Last annotation update) 15-UL-1999 (Rel. 08, Last annotation update) 15-UL-1999 (Rel. 08) REATOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA) HOMO sapiens (Human). Eutalata; Vertebrata; Eutelec Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Eutelec                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Mammalia; Eutherla; Frimates; Catarrini; Hominidae; Homo.  [1] SEQUENCE FROM N.A. MEDILINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O. Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelala cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986).  [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; WADDINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; "Cloning of the gene coding for human class I heparin-binding Mol. Cell. Biol. 9:2387-2395(1989).  [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618 "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990).  [4] SEQUENCE FROM N.A. MEDLINE; 90038637. Mergia A., Tischer E., Graves D., Tumolo A., Miller J., Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.; Structural analysis of the gene for human acidic fibroblast g                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Mammalia; Eutherla; Frimates; Catarrini; Hominidae; Homo.  [1] SEQUENCE FROM N.A. MEDILINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; "Chomissione 233:541-545(1986).  [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM, Wang W.P., Lehtcma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; "Cloning of the gene coding for human class 1. "Cloning of the gene coding for human class 1. "SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 9025618. Chiu I.M., Wang W.P., Lehtcma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990). [4] SEQUENCE FROM N.A. MEDLINE; 90073637. MEDLINE; 90073637. MEDLINE; 90073637. MEDLINE; 90073637.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Mammalla; Eutherla; Frimates; Catarrini; Hominidae; Homo.  [1] SEQUENCE FROM N.A. MEDILINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; Munan endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986).  [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM, MEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues.";  [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990). SEQUENCE FROM N.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Mammania; Eutheria; Frimates; Catarrini; Hominidae; Homo.  [1] SEQUENCE FROM N.A. MEDILINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O'Erien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986).  [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; "Cloning of the gene coding for human class I heparin-binding mol. Cell. Biol. 9:2387-2395(1989).  [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDIINE; 90265618 "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Chicklet FROM N.A. SEQUENCE FROM N.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Mammalia; Eutherla; Frimates; Catarrini; Hominidae; Homo.  [1] SEQUENCE FROM N.A. MEDILIE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; [2] Expleme Errom N.A. [2] Expleme FROM N.A. TISSUE-BRIN STEM; WEDLINE; 89343957. "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wanng W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; Oncogene 5:755-762(1990).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            
                                                                                             | Mammalia; Eutherla; Frimates; Catarrhini; Hominidae; Homo.  [1] SEQUENCE FROM N.A. MEDILINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; "Human endothelial cell growth factor: cloning, nucleotide seq science 233:541-545(1986).  [2] SEQUENCE FROM N.A. TISSUE=BRAIN STEM; WEDLINE; 89343957. "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues.";  [3] SEQUENCE FROM N.A. TISSUE=BRAIN STEM; MEDLINE; 9026518. Chu I.M., Wanng W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for h                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Mammalia; Eutherla; Filmates; Catarrini; Hominidae; Homo.  [1] SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986).  [2] SEQUENCE FROM N.A. TISSUE=BRAIN STEM; MEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; MOI. Cell. Biol. 9:2387-2395(1989).  SEQUENCE FROM N.A. TISSUE=BRAIN STEM; MEDLINE; 90265018.  Chiu I.M., Wang W.P., Lehtoma K.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Mammalia; Eutherla; Frimates; Catarrini; Hominidae; Homo.  [1] SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O. Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelala cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986).  [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; WADDINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; MOI. Cell. Biol. 9:2387-2395(1989).  [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Mammalla; Eutherla; Frimates; Catarrnin; Hominidae; Homo.  [1] SEQUENCE FROM N.A. MEDDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; MOI. Cell. Biol. 9:2387-2395(1989). TISSUE-BRAIN STEM, N.A. TISSUE-BRAIN STEM, N.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Mammalla; Eutherla; Frimates; Catarrnini; Hominidae; Homo.  [1] SEQUENCE FROM N.A. MEDILIE; 86261805. Jaye M., How, R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986).  [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 89343957. Wang W.P., Lehtcma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; MOI. Cell. Biol. 9:2387-2395(1989).  [3] SEQUENCE FROM N.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              
                                                                                                                                                                                                                                                                                                                                                 | Mammalia; Eutherla; Filmates; Catarrhini; Hominidae; Homo.  [1] SEQUENCE FROM N.A. MEDILINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986).  [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; WEDDINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; Mol. Cell. Biol. 9:2387-2395(1989).                                                                                                                                                                                                                                                                                                                                                                                                                | Mammalla; Eutherla; Frimates; Catarrnin; Hominidae; Homo.  [1] SEQUENCE FROM N.A. MEDDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O. Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986).  [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; MOI. Cell. Biol. 9:2387-2395(1989).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Mammalla; Eutherla; Frimates; Catarrnini; Hominidae; Homo.  [1] SEQUENCE FROM N.A. MEDILIE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide sequand chromosome localization."; [2] Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM. MEDLINE; 89343957. Wang W.P., Lehtcma K., Varban W.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues.";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Mammalia; Eutherla; Frimates; Catarrini; Hominidae; Homo.  [1] SEQUENCE FROM N.A. MEDILINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O. Erien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide sequed chromosome localization."; Science 233:541-545(1986).  [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 89343957. WARD W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding                                                                                                                                                                                                                                                                                                                                                                                     | Mammalla; Eutherla; Frimates; Catarrnini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O. Strien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Mammalla; Eutherla; Frimates; Catarrini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDLINE; 86261805. MEDLINE; B6261805. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; [2] Excence 233:541-545(1986). SEQUENCE FROM N.A. SEQUENCE FROM N.A. SEQUENCE FROM N.A. MEDLINE; 89343957.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         
                                                                                                                                                                                                                                                                                                                                                                                                                                         | Mammania; Eutheria; Frimates; Catarrinii; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDILINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; Science 233:541 545(1986). ISOUENE FROM N.A. TISSUE=BRAIN STEM;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Mammalla; Eutherla; Frimates; Catarrini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jo'Erien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; Science 233:541-545(1986).  [2] SEQUENCE FROM N.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Mammalla; Eutherla; Frimates; Catarrini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDLINE; 86261805. MEDLINE; 86261805. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; Science 233:541-545(1986).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Mammania; Eutheria; Frimates; Catarrinii; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDILINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial ceal growth factor: cloning, nucleotide and chromosome localization."; Science 233:541-545(1986).                                                                                                                                                                                                                                                                                                                                                                                              | Mammalla; Eutherla; Frimates; Catarrini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization.";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Mammalla; Eutherla; Frimates; Catarrini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDIINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Mammalla; Eutherla; Primates; Catarrill; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Srien S.J., Modi W.S., Maciag T., Drohan W.N., Raver M.Hman endothelial real arouth factor. Cloning purchedidae                                                                                                                                                                                                          
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Mammalla; Eutherla; Primates; Catarrill; Hominidae; F<br>[1] SEQUENCE FROM N.A.<br>MEDLINE: 86261805.<br>Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM.,<br>O'Erien S.J., Modi W.S., Maciaq T., Drohan W.N.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Mammalla; Eutherla; Primates; Catarrill; Hominidae; F<br>[1] SEQUENCE FROM N.A.<br>MEDLINE; 86261805.<br>Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM.,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Mammalla; Eutherla; Frimates; Catarrill; Hominidae; F(1) SEQUENCE FROM N.A. MEDLINE; 86261805.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Mammaila; Eutheria; Frimates; (1) SEQUENCE FROM N.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Homo sapiens (Human).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | For OR Fork.<br>Homo sapiens (Human).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        
                                                                                                                                                                                                                                                                                               | FGF1 OR FGFA.<br>Homo sapiens (Human).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA). FGF1 OR FGFA. Homo sapiens (Human).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 15-700-1999 (Rel. 09, Last annotation update) 15-701-1999 (Rel. 38, Last annotation update) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) FGF1 OR FGFA. HOMO sapiens (Human).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 13.AUG-1987 (Rel. 05, Last sequence update) 15.JUL-1999 (Rel. 38, Last annotation update) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) FGF1 OR FGFA. HOMO sapiens (Human)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 13-AUG-1987 (Rel. 05, Created) 13-AUG-1987 (Rel. 05, Last sequence update) 15-JUL-1998 (Rel. 08, Last sequence update) 15-JUL-1999 (Rel. 38, Last annotation update) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) FGF1 OR FGFA. HOMO Sapiens (Human).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | P05230; P07502; 13-MG-1987 (Rel. 05, Created) 13-MG-1997 (Rel. 05, Last sequence update) 15-UG-1999 (Rel. 38, Last annotation update) 15-UL-1999 (Rel. 38, Last annotation update) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) FGF1 OR FGFA. HOMO Sapiens (Human).                                                                                                                                                                                                                                                                  
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | FGT1 HUMAN STANDARD; PRT; 155 AA. P07502; 13-AUG-1987 (Rel. 05, Created) 13-AUG-1987 (Rel. 05, Last sequence update) 13-AUG-1987 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 38, Last annotation update) 15-JUL-1999 (Rel. 38, Last annotation update) 15-JUL-1999 (Rel. 38, Last Ennotation update) 15-JUL-1999 (Rel. 08, Last Ennotation update) HEPARIN-BINDING RROWH FACTOR 1 PRECURSOR (HEGF-1) (ACIDIC GROWTH FACTOR) BETA. HOMO Sapiens (Human).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Bundalyota; metazoa; Chordata; Crantata; verteorata; Euteleosco Mammalia; Eutherla; Primates; Catarrhini; Hominidae; Homo. (1) MEDLINE; 86201805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization.";  Science 233:541-545(1986).  "Science 233:541-545(1986).  "Science 233:541-545(1986).  "Science 233:541-545(1986).  "TISSUE-BRAIN STEM;  WADDLINE; 89343957.  Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues.";  "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues.";  "Alternative Splicing generates two forms of mRNA coding for heparin-binding growth factor I.";  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor I.";  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor I.";  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor I.";  "Maternative Splicing generates two forms of mRNA coding for heparin-binding growth factor I.";  "SEQUENCE FROM N.A.  "ESQUENCE FROM N.A.  "Alternative Splicing generates two forms of mRNA coding for heparin-binding growth factor I.";  "Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;  "Structural analysis of the gene for human acidic fibroblast growth factor I."                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Eukaryota; Metazoa; Chordata; Cranzhaia; Verteorata; Euteleosco Mammalia; Eutherla; Primates; Catarrhini; Hominidae; Homo. [1]  SEQUENCE FROM N.A.  MEDLINE; 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Erlen S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide seg and chromosome localization.";  Science 233:541-545(1986).  SEQUENCE FROM N.A.  TISSGE-BRAIN STEM;  MEDLINE; 89343957.  Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  "Cloning of the gene cooling for human class I heparin-binding factor and its expression in fetal tissues.";  MOI. Cell. Biol. 9:2387-2395(1989).  TISSUE-BRAIN STEM;  MEDLINE; 90265618.  Chu I.M., Wanng W.P., Lehtoma K.;  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";  Oncogene 5:755-762(1990).  [4]  SEQUENCE FROM N.A.  MEDLINE; 90073637.  MEDLINE; 90073637.  MEDLINE; Went E., Graves D., Tumolo A., Miller J.,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Eukaryota; metazoa; Chordata; Cranzhia; Verteorata; Euteleosco Mammalia; Eutherla; Primates; Catarrhini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O'Erien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; WADINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; "Cloning of the gene coding for human class I heparin-binding mot Cell. Biol. 9:2387-2395(1989). TISSUE-BRAIN STEM; WEDLINE; 90265618. TISSUE-BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; oncogene 5:755-762(1990). SEQUENCE FROM N.A. SEGUENCE FROM N.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Eukaryota; metazoa; Chordata; Cranzhia; verteorata; Eucleosco Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O. Erien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; [2] Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE=BRAIN STEM; WEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; MEDLINE; 89265618. [3] SEQUENCE FROM N.A. TISSUE=BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1."; oncogene 5:755-762(1990).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Eukaryota; metazoa; Chordata; Cranzhia; verteorata; Euteleosco Mammalia; Eutherla; Primates; Catarrhini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Erlen S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seg and chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; MEDLINE; 8026518. [3] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.; Chiu I.M., Wang W.P., Lehtoma K.; Oncogene 5:755-762(1990).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Eukaryota; Metazoa; Chordata; Cranzhia; Verteorata; Euteleosco Mammalia; Eutherla; Primates; Catarrhini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess
W., Ricca G.A., Chiu IM., Ravera M. O'Erlen S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seg and chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSGE-BRAIN STEM; MEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene cooling for human class I heparin-binding factor and its expression in fetal tissues."; MOI. Cell. Biol. 9:2387-2395(1989). TISSUE-BRAIN STEM; MEDLINE; 9026518. Chu I.M., Wanng W.P., Lehtoma K.; Alternative splicing generates two forms of mRNA coding for h                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Eukaryota; Metazoa; Chordata; Cranzhia; Verteorata; Euteleosco Mammalia; Eutherla; Primates; Catarrhini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O'Erien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; Mang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; MOI. Cell. Biol. 9:2387-2395(1989). SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618. Chiu I.M., Wang W.P., Lehtoma K.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Eukaryota; metazoa; Chordata; Cranzhia; Verteorata; Euteleosco Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O. Erien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; "Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE=BRAIN STEM; WADDIINE; 89343957. WAND W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; MOI. Cell. Biol. 9:2387-2395(1989). [3] SEQUENCE FROM N.A. TISSUE=BRAIN STEM; MEDLINE; 90265618.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Eukaryota; Metazoa; Chordata; Cranzhaia; Verteorata; Euteleosco Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Erien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seg and chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSGEBRAIN STEM; MEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; MOI. Cell. Biol. 9:2387-2395(1989). TISSUE-BRAIN STEM,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Eukaryota; Metazoa; Chordata; Cranzhata; Verteorata; Euteleosco Mammalia; Eutherla; Primates; Catarrhini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelala cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM, WEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; SEQUENCE FROM N.A. SEQUENCE FROM N.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    
                                                    | Eukaryota; Medazoa; Chordata; Cranzhata; Verteorata; Eurcleosco Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O'Erien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE=BRAIN STEM; MEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; Mol. Cell. Biol. 9:2387-2395(1989).                                                                                                                                                                                                                                                                                                                                                    | Eukaryota; Metazoa; Chordata; Cranzhata; Verteorata; Euteleosco Mammalia; Eutherla; Primates; Catarrhini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Erlen S.J., Modi W.S., Maciaq T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues."; MOI. Cell. Biol. 9:1287-2395(1989).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Eukalyota; Metazoa; Chordata; Crantata; Vertebrata; Euteleosco Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM, MEDLINE; 89343957. "Human of the gene coding for human class I heparin-binding factor and its expression in fetal tissues.";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Eukaryota, metazoa; Chordata; Crantata; Verteorata; Euteleosco Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O'Erien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide segand chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE=BRAIN STEM; MEDLINE; 89343957. WANDY W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding                                                                                                                                                                                                                                                                                                                        | Eukaryota; Metazoa; Chordata; Cranzhaia; Verteorata; Euteleosco Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O.Erien S.J., Modi W.S., Maciaq T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide segand chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSGEBRAIN STEM; MEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | EUKAIYOLA; MEGAZOA; CNOIGATA; CTANIATA; VETTEDZATA; EUKAIYOLA; MEGAZOA; CNOIGATA; CTANIATA; VETTEDZATA; EUTHERIA; MAMMANIA; EUTHERIA; PLIMATES; CATAITHIN; HOMINIGAE; HOMO.  [1] SEQUENCE FROM N.A.  MEDLINE; 86261805.  JAye M., HOWK R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization.";  Science 233:541-545(1986).  [2]  [2]  ESCUENCE FROM N.A.  TISSUE—BRAIN STEM;  MEDLINE; 89343957.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  
                                                                                                                                            | Eukaryota; Metazoa; Chordata; Craniata; Verteorata; Eutealed Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] Seguence FROM N.A. Seguence FROM N.A. Seguence FROM N.A. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endochtelial cell growth factor: cloning, nucleotide and chromosome localization."; Science 233:541-545(1986). [2] [2] [2] Seguence FROM N.A. TISSUE-BRAIN STEM;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | EUKATYOLA; MetaZoa; Cnordata; Craniata; Verteorata; Eutealed Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] SEQUENCE PROM N.A. SEQUENCE PROM N.A. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver. O'Shien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothblial cell growth factor: cloning, nucleotide and chromosome localization."; Science 233:541-545(1986). SEQUENCE PROM N.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Eukaryota; Metazoa; Chordata; Craniata; Verteorata; Eutele<br>Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.<br>[1]<br>SEQUEBNCE FROM N.A.<br>MEDLINE; 86261805.<br>Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver<br>O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;<br>"Human endothelial cell growth factor: cloning, nucleotide<br>and chromosome localization.";<br>Science 233:541-545(1986).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Eukaryota; Metazoa; Chordata; Craniata; Verteorata; Euteare<br>Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.<br>[1] SEQUENCE FROM N.A.<br>SEDUENCE; 86261805.<br>Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver<br>O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;<br>"Human endothelial cell growth factor: cloning, nucleotide<br>and chromosome localization.";<br>Science 233:541-545(1986).                                                                                                                                                                                                                                                                                                          | Eukaryota; Metazoa; Cnordata; Catarrhini; Hominidae; Butelee Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] SEQUENCE PROM N.A. SEQUENCE PROM N.A. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Shien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothblial cell growth factor: cloning, nucleotide and chromosome localization.";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Eukaryota; Metazoa; Chordata; Craniata; Verteorata; Eutele<br>Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.<br>[1] SEQUENCE FROM N.A. MEDILINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver<br>O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;<br>"Human endothelial cell growth factor: cloning, nucleotide                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Eukaryota; Metazoa; Chordata; Craniata; Verteorata; Eutelee Bummalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] Cagorone From N.A. SEQUENCE FROM N.A. SEQUENCE RESORTING: 86266180. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Stien S.J., Modi W.S., Maciag T., Droham W.N., Raver M. Human endothelial real arouth factor. Clonian purchedida                                                                                                                                                                                                                                                                                                                                                                                                           
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Eukaryota; metazoa; Chordata;<br>Mammalia; Eutheria; Primates;<br>[1]<br>SEQUENCE FROM N.A.<br>MEDLINE; 86261805.<br>Jaye M., Howk R., Burgess W.,<br>O'Brien S.J., Modi W.S., Macia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Eukaryota, metazoa, chordata,<br>Mammalia, Eutheria, Primates,<br>[1] SEQUENCE FROM N.A.<br>MEDLINE; 86261805.<br>Jaye M., HOWK R., Burgess W.,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Eukaryota; metazoa; chordata;<br>Mammalia; Eutheria; Primates;<br>[1]<br>SEQUENCE FROM N.A.<br>MEDLINE; 86261805.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Eukaryota; Metazoa; Chordata;<br>Mammalia; Eutheria; Primates;<br>[1]<br>SEQUENCE FROM N.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1101                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      
  | FGF1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA). FGF1 OR FGFA.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 15-700-1999 (Rel. 38, Last annotation update) 15-701-1999 (Rel. 38, Last annotation update) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) FGF1 OR FGFA.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 13-AUG-1987 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 38, Last annotation update) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA). FGF1 OR FGFA.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 13-AUG-1987 (Rel. 05, Created) 13-AUG-1987 (Rel. 05, Last sequence update) 13-AUG-1999 (Rel. 38, Last annotation update) 15-ULL-1999 (Rel. 38, Last annotation update) GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA). FGFI OR FGFA.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | P05230; P07502; 13-AUG-1987 (Rel. 05, Created) 13-AUG-1997 (Rel. 05, Last sequence update) 15-AUG-1999 (Rel. 38, Last annotation update) 15-JUL-1999 (Rel. 38, Last annotation update) GROWTH FACTOR (ROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) FGF1 OR FGFA.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | FGF1_HUMAN STANDARD; PRT; 155 AA. P05230; P07502; 13-AUG-1987 (Rel. 05, Created) 13-AUG-1987 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 38, Last annotation update) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| FGET OR FCERA.  Homo Sapiens (Human).  Editaryota: Metazoa: Chordata; Craniata; Vertebrata; Euteleosto Eukaryota: Metazoa: Chordata; Catarrhini; Hominidae; Homo.  Editaryota: Metazoa: Chordata; Catarrhini; Hominidae; Homo.  Editaryota: Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization.";  "Human endothelial cell growth factor: cloning, nucleotide seq and chromosome localization.";  "Human endothelial cell growth factor: cloning, nucleotide seq science 233:541-545(1986).  [2]  EDUINCE FROM N.A.  TISSUE-REAN STEM;  WADLINE; 8043957,  WAD Cell. Biol. 9:2387-2395(1989).  [3]  EDUINCE FROM N.A.  TISSUE-BRAIN STEM;  MEDLINE; 90265618  Chiu I.M., Wang W.P., Lehtoma K.;  MEDLINE; 90365618  Chiu I.M., Wang W.P., Lehtoma K.;  "Alternative splicing generates two forms of mRNA coding for hepatin-blinding growth factor 1.";  Chocogene 5:755-762(1990).  [4]  EGOGENCE FROM N.A.  SECOURCE FROM N.A.  MEDLINE; 9033637.  Mergia A., Tischer E., Graves D., Tumolo A., Miller J.,  Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;  "Structural analysis of the gene for human acidic fibroblast g                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | FGETAL  FGETAL | FGETAL. FGETAL | FGET OR FCFA.  Homo sapiens (Human).  Edwaryotes, Metazoa; Chordata; Craniata; Vertebrata; Euteleosto Eukaryotes, Metazoa; Chordata; Catarrhini; Hominidae; Homo.  Eukaryotes, Metazoa; Chordata; Catarrhini; Hominidae; Homo.  Eukaryotes, Metazoa; Chordata; Catarrhini; Hominidae; Homo.  SEQUENCE FROM N.A.  MEDLINE; 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide sequand chromosome localization.";  "Human endothelial cell growth factor: cloning, nucleotide sequand chromosome localization.";  "Human endothelial cell growth factor: cloning, nucleotide sequand chromosome localization.";  "Human endothelial cell growth factor: cloning, nucleotide sequand thoman of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues.";  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";  Chiu I.M., Wang W.P., Lehtoma K.;  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";  Chicker FROM N.A.  TISSUE-BRAIN STEM;  WEDLINE; 90265618  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";  Chicker FROM N.A.  TSSUE-BRAIN STEM;  WEDURE FROM N.A.  TSSUE-BRAIN STEM;  WEDLINE; 9026518  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | FGETAL. FGETAL | FGFT OR FGFA.  Homo sapiens (Human).  ENGRIANT (FGFA.  Manmalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  [1]  ENGUENCE FROM N.A.  MEDLINE; 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O'Brien S.J., Modi W.S., Maciag T., Drohan M.N.;  "Human endothelial cell growth factor: cloning, nucleotide sequand chromosome localization.";  "Human endothelial cell growth factor: cloning, nucleotide sequand chromosome localization.";  Science 233:541-545(1986).  [2]  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM;  MODI. W. Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues.";  MEDLINE; 80343957.  MODI. Cell. Biol. 9:2387-2395(1989).  TISSUE-BRAIN STEM;  MEDLINE; 90265618.  Chiu I.M., Wanng W.P., Lehtoma K.;  Alternative splicing generates two forms of mRNA coding for halternative splicing generates two                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | FGETA.  FGETA. | FGET OR FGEA.  Homos sapiens (Human).  ENKARLYOTE, RETACAGE (Human).  ENKARLYOTE, RETACAGE (Human).  ENKARLYOTE, RETACAGE (Human).  ENKARLYOTE, HOMO.  [1]  SEQUENCE FROM N.A.  MEDLINE; 86261805.  JAYPE M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide segand chromosome localization.";  Science 233:541-545(1986).  [2]  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM;  MEDLINE; 89343957.  Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues.";  REDLINE; 80265618.  TISSUE-BRAIN STEM;  MEDLINE; 80265618.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | FGETAL. FGETAL | FGETAL  FGETAL | FGET OR FCFA.  Homo sapiens (Human).  Edwaryota: Metazoa: Chordata; Craniata; Vertebrata; Euteleostc Bukaryota: Metazoa: Chordata; Catarrhini; Hominidae; Homo.  Eukaryota: Metazoa: Chordata; Catarrhini; Hominidae; Homo.  Eukaryota: Metazoa: Catarrhini; Hominidae; Homo.  SEQUENCE FROM N.A.  MEDLINE: 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.O.  Frien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide seq and cromosome localization.";  "Human endothelial cell growth factor: cloning, nucleotide seq and cromosome localization.";  "Expuser PROM N.A.  TISSUE-RROM N.A.  TISSUE-RROM N.A.  TISSUE-RROM N.A.  TISSUE-RROM Of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues.";  MOL Cell. Biol. 9:2387-2395(1989).                                                                                                                                                                        | FGFT OR FGFA.  Homo sapiens (Human).  EUKARYOTE, Metacas (Human).  EUKARYOTE, Metacas (Catarrhini; Hominidae; Homo.  EUKARYOTE, Burners, Catarrhini; Hominidae; Homo.  [1]  SEQUENCE FROM N.A.  MEDLINE; 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M.  O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  Human endothalial cell growth factor: cloning, nucleotide seg and chromosome localization.";  Science 233:541-545(1986).  SEQUENCE FROM N.A.  TISSUES-FRAIN STEM;  MEDLINE; 89343957.  Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  "Cloning of the gene coding for human class I heparin-binding factor and its expression in fetal tissues.";  MOI. Cell. Bol. Bol. 23287-2395(1989).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | FGETA.  FGETA. | FGF1 OR FGFA.  FGF1 OR FGFA.  Homo spapes (Human).  ENKALYOTE, HOLDERIA (Human).  ENKALYOTE, HOLDERIA (Human).  ENKALYOTE, HOMO.  [1]  SEQUENCE FROM N.A.  MEDLINE; 86201805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera M. O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide segand chromosome localization.";  Science 233:541-545(1986).  TISSUE-BRAIN STEM;  MEDLINE; 89343957.  MARDINE; 89343957.  WARDINE; Royal S.C.  Tobiang of the gene coding for human class 1 heparin-binding                                                                                                                                                                                                                                                                                                                                                   | FGFT OR FGFA.  FGFT OR FGFT OR IN A.  FGFT OR FGFT OR IN A.  FGFT OR FGFT OR FGFT OR IN A.  FGFT OR | FGF1 OR FGFA.  FGF1 OR FGFA.  Homo sapinas (Human).  Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. SEQUENCE FROM N.A.  MEDLINE; 86261805.  MEDLINE; 86261805.  "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization.";  "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization.";  [2]  Science 233:541-545(1986).  EXSUEBRAIN STA.  **MEDLINE; 89343957.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | BETA). FGF1 OR FGFA. Homo sapiens (Human). FGF1 OR FGFA. Homo.  [1] FGF2 OR FGFA. Mammalia: Eutheria; Primates; Catarrhini; Hominidae; Homo.  [2] FGG1 OR FROM N.A.  FGG1 OR FROM N.A.  FGG1 OR FG OR S.A.  FGG1 OR FG | BETA). FGFI OR FGFA. Homo sapiens (Human). Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Eutelec Bukaryota; Metazoa; Chordata; Catarrhini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; Science 233:541-545(1986). SEQUENCE FROM N.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | BETR). FGFI OR FGFA. Homo Sapinas (Human). Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., How R., Burgess W., Ratca G.A., Chiu IM., Raver Jaye M., How R., Burgess W., Ratca G.A., Chiu IM., Raver Jaye M., How R., Burgess W., Ratca G.A., Chiu IM., Raver Jaye M., How R., Burgess W., Ratca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ratca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ratca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ratca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ratca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ratca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ratca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ratca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ratca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ratca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ratca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ratca G.A., Chiu IM., Raver Jaye M., Lange M., Ratca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ratca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ratca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ratca G.A., Chiu IM., Raver Jaye M., Ratca G.A., Chiu IM., Raver Jaye M., Ratca G.A., Chiu IM., Ratca G.A., Chiu IM                        | BETA). FGF1 OR FGFA. Homo saptans (Human). FGF1 OR FGFA. Homo saptans (Human). FGF2 OR FGFA. Homo saptans (Human). FGF3 OR FGFA. Homomalia: Eutheria: Primates; Catarrhini: Hominidae: Homo. [1] SEQUENCE FROM N. MEDLINE: 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; Science 233:541-545(1986).                                                                                                                                                                                                                                                               | BETA). FGET OR FGFA. Homos Sapiens (Human). EUKARYOCA: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] [1] MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Srien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization.";                                                                                                                                                                                                                                                                                                                                                                                                                                                          | BETRA.  FGET OR FGFA.  Homo Sapinas (Human).  Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  [1] SEQUENCE FROM N.A.  MEDLINE: 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | BETA). FGF1 OR FGFA. Homo sapiens (Human). FGF1 OR FGFA. Homo sapiens (Human). FGF2 OR FGFA. Homo sapiens (Human). FGF3 OR FGFA. Homo sapiens (Human). FGF4 OR FGFA. Homo sapiens (Human). FGF4 OR FGFA. Homo sapiens (Human). FGF4 OR FGFA. FGFA OR F | BETA). FGF1 OR FGFA. Homo sapiens (Human). Editaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleos Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. (1) SEQUENCE FROM N.A. MEDLINE; 86561805. JAYP M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera O'Brien S.J., Modi W.S., Maciaq T., Drohan W.N.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | BETA). FGF1 OR FGFA. Homo sapiens (Human). Eukaryota, Metazoa; Chordata; Craniata; Vertebrata; Euteleos Bukaryota; Butheria; Primates; Catarrhini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDLINE; 86251805. JAYO M., Howk R., Burgess W., Ricca G.A., Chiu IM., Ravera                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | BETA). FGF1 OR FGFA. Homo sapiens (Human). Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. SEQUENCE FROM N.A. MEDLINE; 86261805.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | BETA). FGF1 OR FGFA. Homo sapiens (Human). Manmalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. (1) SEQUENCE FROM N.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | BETA).  BOTTA: COLOR. (NO. 1) (DEIN ENDOTHERED CELLE GROWING FACTOR)  FOR THE PROPERTY OF THE | DEBAY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 15-700-1999 (Ref. 05, Last Sequence update)<br>15-70U-1999 (Rel. 38, Last annotation update)<br>HEPARIN-BINDING GROWN FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 13-AUG-1987 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 38, Last annotation update) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 13-AUG-1987 (Rel. 05, Created) 13-AUG-1987 (Rel. 05, Last sequence update) 15-AUG-1999 (Rel. 98, Last annotation update). 15-SUL-1999 (Rel. 98, Last Annotation update).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | P05230; P07502;<br>13-AUG-1987 (Rel. 05, Created)<br>13-AUG-1987 (Rel. 05, Last sequence update)<br>15-UUL-1999 (Rel. 38, Last annotation update)<br>HEPRAIN-BINDING SROWTH FACTOR 1 PRECURSOR (HEGF-1) (ACIDIC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | FGT1 HUMAN STANDARD; PRT; 155 AA. P05230; P07502; P075 |
| HEPARIN' BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR)  GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR)  BETA).  FGF1 OR FGFA.  Homo sapiens (Human).  EUKARYOCA: Metaca; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  [5]  SEQUENCE FROM N.A.  MEDLINE; 86261805.  JAYe M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization.";  "Science 233:541-545(1986).  [2]  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM;  WEDLINE; 8934397.  "Alson of the gene coding for human class 1 heparin-bindifactor and its expression in fetal tissues.";  "Cloning of the gene coding for human class 1 heparin-binding growth factor 1.";  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";  "Alternative Splicing Goopdarowicz D., Tumolo A., Miller J.,  SEQUENCE FROM N.A.  MEDLINE; 90073637.  SECUENCE FROM N.A.  MEDLINE; 90073637.  SECUENCE FROM N.A.  MEDLINE; 90073637.  SECUENCE FROM N.A.  MEDLINE; 90073637.  MEDLIN   | HEPARIN'BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) BETRA.  FGE1 OR FGFA.  Home sapiens (Human).  EUKARYOCE: Metazoa; Chordata; Craniata; Vertebrata; Butelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1]  EUKARYOCE: Metazoa; Chordata; Craniata; Vertebrata; Butelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [2]  EUKARYOCE: FROM N.A.  MEDLINE; 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver J. Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization.";  [2]  EUGLOCE FROM N.A.  TISSUE-BRAIN STEM;  MEDLINE; 89343957.  Mang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  MEDLINE; 89343957.  MOI. Cell. Biol. 9:2387-2395(1989).  TISSUE-BRAIN STEM;  MEDLINE; MEDLINE; MEDLINE;  MEDLINE; MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MEDLINE;  MILLER J., MILLER J., MILLER J.,  MEDLINE;  MEDLINE;  MEDLINE;  MILLER J., MILLER J.,  MEDLINE;  MEDLINE;  MEDLINE;  MILLER J., MILLER J.,  MEDLINE;  MILLER J., MILLER J.,  MEDLINE;  MILLER J., MILLER J.,  MEDLINE;  M   | HEPARIN'BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) BETRA. FGF1 OR FGFA. Homo Sapiens (Human). Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M.; Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jo' Briens S.J., Modi W.S., Maciag T., Drohan W.N.; Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; Acid Chronic Coloning, nucleotide and chromosome localization."; Science 233:541-545(1986). [2] EQUENCE FROM N.A. SEQUENCE FROM N.A. SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 89343957. WHEDLINE; 89343957. WEDLINE; 89343957. MADLINE; 89343957. MEDLINE; 89343957. MEDLINE; 89343957. MEDLINE; 89343957. MEDLINE; 8026518. TISSUE-BRAIN STEM; MEDLINE; 9026518. Chiu I.M., Wang W.P., Lehtoma K.; Alternative splicing generates two forms of mRNA coding foncogene 5:755-762(1990). SEQUENCE FROM N.A. SEGUENCE FROM N.A. SEGUENCE FROM N.B. SEGUENCE FROM N.B. SEGUENCE FROM N.B. MEDLINE; 9026518. SEGUENCE FROM N.B. SEGUENCE FROM N.B. SEGUENCE FROM N.B. SEGUENCE FROM N.B. MEDLINE; 9026518. SEGUENCE FROM N.B. MEDLINE; 9026518. SEGUENCE FROM N.B. MEDLINE; 9026518. MEDLINE; 9026518. SEGUENCE FROM N.B. MEDLINE; 9026518. SEGUENCE FROM N.B. MEDLINE; 9026518. SEGUENCE FROM N.B. MEDLINE; 9026518. MEDLINE; 9026518. SEGUENCE FROM N.B. MEDLINE; 9026518. MEDLINE; 9026518.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | HEPARIN' BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR)  GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR)  EGR A FGFA.  Homo saplens (Human).  EUKARYOCA: Metazoa: Chordata; Craniata; Vertebrata; Eutelec Mammalia: Eutheria; Primates; Catarrhini; Hominidae; Homo. [1]  EUKARYOCA: Medi W.S.  MEDLINE: 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization.";  "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization.";  Science 233:541-545(1986).  [2]  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM;  WHEDLINE: 8934395.  Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  "Cloning of the gene coding for human class 1 heparin-bindifactor and its expression in fetal tissues.";  MOL. Cell. Biol. 9:2387-2395(1989).  [3]  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM;  MEDLINE; 90265618.  MEDLINE; 90265618.  MEDLINE; 90265618.  MAIDETARIN' Wang W.P., Lehtoma K.;  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";  Oncogene 5:755-762(1990).  SEQUENCE FROM N.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | HERRAIN BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) BETRA.  FGF1 OR FGFA.  FGF1 OR FGFA.  Homo Sapiens (Human).  EUKARYOCA: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Bukaryoca: Metazoa; Chordata; Catarrhini; Hominidae; Homo.  [1]  Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  [2]  SEQUENCE FROM N.A.  MEDLINE; 86261805.  JAYe M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver J. Wolf N.S., Maciag T., Drohan W.N.;  "Human endothalial cell growth factor: cloning, nucleotide and chromosome localization.";  [2]  SEQUENCE FROM N.A.  SISSUE-BRAIN STEM;  MEDLINE; 8934.957.  Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  CLONING of the gene coding for human class I heparin-bindi factor and its expression in fetal tissues.";  MOI. Cell. Biol. 9:2387-2395(1989).  TISSUE-BRAIN STEM;  MEDLINE; 90265618  CHU I.M., Wang W.P., Lehtoma K.;  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";  Occopene 5:755-762(1990).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | HERRAIN BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) GROWTH FACTOR)  BETRA.  FGF1 OR FGFA.  Homo sapiens (Human).  EUKARYOCA: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1]  EUKARYOCA: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [2]  EUKARYOCA: Modi W.S.  MEDLINE; 86261805.  JAYA M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization.";  Cloning of chroma N.A.  SCIENCE FROM N.A.  TISSUE-BRAIN STEM;  MEDLINE; 89343957.  Wang W.P., Lehtoma K., Varban
M.L., Krishnan I., Chiu I.M.;  "CLONING of the gene coding for human class I heparin-bindi factor and its expression in fetal tissues.";  MOI. Cell. Biol. 9:2387-2395(1989).  TISSUE-BRAIN STEM;  MEDLINE; 90265618.  TISSUE-BRAIN STEM;  MEDLINE; 90265618.  TISSUE-BRAIN STEM;  MEDLINE; 90265618.  Alternative splicing generates two forms of mRNA coding for "Alternative splicing generates two forms of mRNA coding for "Alternative splicing generates two forms of mRNA coding for "Alternative splicing generates the state of the specific the   | HEPARIN BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) GROWTH FACTOR) BETRA.  FGF1 OR FGFA.  Homo sapiens (Human).  EUKARYOCA: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. SEQUENCE FROM N.A.  MEDLINE; 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jo' Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization.";  "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization.";  [2]  Science 233:541-545(1986).  [2]  KEDLINE; 89343957.  WEDLINE; 89343957.  WEDLINE; 89343957.  WEDLINE; 89343957.  WEDLINE; Rome coding for human class 1 heparin-bindifactor and its expression in fetal tissues.";  MCLONING of the gene coding for human class 1 heparin-bindifactor and its expression in fetal tissues.";  MEDLINE; 9026518.  TISSUE-BRAIN STEM;  MEDLINE; 9026518.  Chiu I.M., Wang W.P., Lehtoma K.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | HEPARIN' BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA). FGF1 OR FGFA. Homo saplens (Human).  SEQUENCE FROM N.A. MEDLINE: 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Srien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; SCIENCE FROM N.A. TSSUE-BRAIN STEM; WEDLINE; 89343957. Wang W.P., Lehtom K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-bindifactor and its expression in fetal tissues."; MCDLINE; 89265618. SEQUENCE FROM N.A. SEGUENCE FROM N.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | HEPARIN' BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETR).  FGF1 OR FGFA.  Homo sapiens (Human).  EUKARYOCA: Metaca; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1]  EUKARYOCA: Metaca; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [2]  EUKARYOCA: Modi W.S.  MEDLINE; 86261805.  JAYP M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization.";  Science 233:541-545(1986).  [2]  SEGUENCE FROM N.A.  TISSUE-BRAIN STEM;  MODI W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  "CLONING of the gene coding for human class 1 heparin-bindifactor and its expression in fetal tissues.";  MODI. Cell. Biol. 9:2387-2395(1989).  TISSUE-BRAIN STEM;  TISSUE-BRAIN STEM;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | HERPARIN BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) GROWTH FACTOR) GROWTH FACTOR) BETRA.  FGF1 OR FGFA. Homo Sapiens (Human). Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [2] SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M.; Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M.; Howan endothelial cell growth factor: cloning, nucleotide and chromosome localization."; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; [2] Science 233:541-545(1986). [2] SCIENCE FROM N.A. TISSUE-BRAIN STEW MEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-bindi factor and its expression in fetal tissues."; MOI. Cell. Biol. 9:2387-2395(1989). SEQUENCE FROM N.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | HEPARIN BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETR). FGF1 OR FGFA. Homo saplens (Human). Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Butelec Manmania: Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] Manmania: Eutheria; Primates; Catarrhini; Hominidae; Homo. [2] BOUENCE FROM N.A. MEDLINE; 86268805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciaq T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; Science 233:541-545(1986). [SEQUENCE FROM N.A. TISSUE-BRAIN STEM; Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-bindifactor and its expression in fetal tissues."; MOIL Cell. Biol. 9:2387-2395(1989).                                                                                                                                         | HEPARIN' BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA). FGF1 OR FGFA. Homo sapiens (Human). EUKARYOCA: Metaca; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDLINE; 86261805. JAYP M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; Science 233:541-545(1986). [2] SEQUENCE FROM N.A. TISSUE-BRAIN STEM; TISSUE-BRAIN STEM; WEDLINE; 89343957. Wang
W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class 1 heparin-bindifactor and its expression in fetal tissues."; MOL. Cell. Biol. 9:2387-2395(1989).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | HEPARIN'BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) GROWTH FACTOR) GROWTH FACTOR)  BETRA.  FGF1 OR FGFA.  Homo sapiens (Human).  EUKARYOCA: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1]  EUKARYOCA: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [2]  SEQUENCE FROM N.A.  MEDLINE; 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization.";  Colence 233:541-545(1986).  [2]  SCIENCE FROM N.A.  SEQUENCE FROM N.A.  SCIENCE ROM O'A.  MEDLINE; 89343957.  WEDLINE; 89343957.  WEDLINE; 80343957.  WEDLINE; ROM O'A the gene coding for human class I heparin-bindifactor and its expression in fetal tissues.";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | HERRAIN BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETRA). FGF1 OR FGFA. Homo saplens (Human). Homo saplens (Human). Homo saplens (Eukaryota: Metazoa; Chordata; Catarrhini; Hominidae; Homo. Subaryota: Metazoa; Chordata; Catarrhini; Hominidae; Homo. SEQUENCE FROM N.A. MEDLINE: 86264805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; Science 233:541-545(1986). TISSUE-BRAIN STEM; WEDLINE: 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-bindi                                                | HEPARIN'BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) GROWTH FACTOR) GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA). FGF1 OR FGFA. Homo Saplens (Human). EUKARYOCA: Metaca; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] MEDLINE; 86261805. MEDLINE; 86261805. JAYP M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; Science 233:541-545(1986). TISSUE-BRAIN STEM, TISSUE-BRAIN STEM; MEDLINE; 89343957. WADDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | HEPARIN'BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) GROWTH FACTOR) GROWTH FACTOR) BETRA. FGF1 OR FGFA. HOMO SADJENS (HUMAN). EUKARYOCA: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] Eutheria; Primates; Catarrhini; Hominidae; Homo. [2] SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver J. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver J. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver J. Jaye M., How R., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; Science 233:541-545(1986). [2] SCIENCE FROM N.A. FISSUE-BRAIN STA. FISSUE-BRAIN STA. FISSUE-BRAIN STA. FISSUE-BRAIN STA. FISSUE-BRAIN STA.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | HEPARIN'BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA.  FGF1 OR FGFA.  Homo sapiens (Human).  EURATYOTA: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Bukaryota: Metazoa; Chordata; Catarrhini; Hominidae; Homo. [1]  SEQUENCE FROM NA.  MEDLINE: 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization.";  Science 233:541-545(1986).  [2]  SEQUENCE FROM N.A.  TISSUE-BRAIN STEM;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           
                                                                                                                                                                                                                                                                                                                                                                                                                              | HEPARIN'BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA.  FGF1 OR FGFA.  Homo sapiens (Human).  FGF1 OR FGFA.  Mammalia: Eutheria; Primates; Catarrhini; Hominidae; Homo. [1]  MEDLINE; 86261805.  JAYP M., HOWK R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; Science 233:541-545(1986).  SEQUENCE FROM N.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | HEPARIN'BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) GROWTH FACTOR) GROWTH FACTOR) BETRA. FGF1 OR FGFA. HOMO SADJENS (HUMAN). EUKARYOCA: Metaca; Chordata; Craniata; Vertebrata; Eutelec Mamwalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [STORENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Burgess W., Raver Jaye M., Howk R., Burgess W., Raver Jaye M., Howk R., Burgess W., Raver Jaye M., Howk | HERRAIN BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA.  FGF1 OR FGFA.  Homo sapiens (Human).  Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Eutelec Bukaryota; Metazoa; Chordata; Catarrhini; Hominidae; Homo. [1]  SEQUENCE FROM N.A.  MEDLINE; 8626108.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization.";  Science 233:541-545(1986).                                                                                                                                                           | HEPARIN'BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) GROWTH FACTOR)  GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR)  FGF1 OR FGFA.  Homo saplens (Human).  FGR1 OR FGFA.  Mammalia: Eutheria; Primates; Catarrhini; Hominidae; Homo. [1]  SEQUENCE FROM N.A.  MEDLINE: 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization.";                                                                                                                                                                                                                                                                                                                                   | HEPARIN'BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) GROWTH FACTOR) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) FGF1 OR FGF3.  FGF1 OR FGFA. HOMO SADIAGAS (HUMAN). EUKARYOCA: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M.; Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HERPARIN' BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) GROWTH FACTOR) GROWTH FACTOR) BETRA.  FGF1 OR FGFA.  Homo saplens (Human).  Homo saplens (Human).  Homo saplens (Human).  Homo saplens (Human).  Subtrayota: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammania: Eutheria; Primates; Catarrhini; Hominidae; Homo. [1]  SEQUENCE FROM NA.  MEDLINE; 86264805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Shien S.J., Modi W.S., Maciag T., Drohan W.N.; Amelonfial call drowth factor. Cloning incledified                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HEPARIN'BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) GROWTH FACTOR) GROWTH FACTOR) BETRA. FGF1 OR FGFA. HOMO SADIENS (HUMAN). EUKARYOCA: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDLINE; 86261805. JAYP M., HOWK R., Burgess W., Ricca G.A., Chiu IM., Raver JO'Brien S.J., Modi W.S., Maciaq T., Drohan W.N.;                                                                     
                                                                                                                                                                                                                                                                                                | HEPARIN'BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) GROWTH FACTOR) GROWTH FACTOR) BETA.  FGF1 OR FGFA.  Homo sapiens (Human).  Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Eutelec Bukaryota; Metazoa; Chordata; Catarrhini; Hominidae; Homo. (1)  SEQUENCE FROM N.A.  MEDLINE; 86261805.  JAye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | HEPARIN'BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) GROWTH FACTOR) GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) FGF1 OR FGFA. Homo Saplens (Human). EUKARYOCA: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDLINE; 86261805.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | HERARIN BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) FGF1 OR FGFA.  HOMO Sapiens (Human).  Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. SEQUENCE FROM N.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC COLUMN PACTOR) (APCR) (BETA-FUNDMENTAL CET CENTUR PACTOR)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                    
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 13-MUG-130/                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 13-AUG-1987                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 13-AUG-1987<br>13-AUG-1987                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | P05230; P075<br>13-AUG-1987<br>13-AUG-1987                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | FGF1_HUMAN<br>P05230; P075<br>13-AUG-1987<br>13-AUG-1987                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 15-70L-1999 (Rel. 38, Last annotation update)  15-70L-1999 (Rel.) 38, Last annotation update)  BETRA.  EUKARTONE GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR)  BETRA.  EUKARYOCE: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Homo sapiens (Human).  EUKARYOCE: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Homo.  [1]  MEDLINE; 86261805.  JAYº M., HOWK N., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciaq T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization.";  "Human endothelial coll growth factor: cloning, nucleotide and chromosome localization.";  "Science 233:541-545(1986).  [2]  Science 233:541-545(1986).  [3]  EDDINE; 89343957.  Wang W.B., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  "Cloning of the gene coding for human class I heparin-bindifactor and its expression in fetal tissues.";  "Cloning of the gene coding for human class I heparin-binding for human growth factor I.";  "Alternative splicing generates two forms of mRNA coding for heparin binding growth factor I.";  "Alternative splicing generates two forms of mRNA coding for heparin binding growth factor I.";  "Alternative splicing growth factor I.";  "Alternative splicing growth factor I.";  "Alternative splicing growth factor I.";  "Anternative splicing growth factor I.";  "Anternative splicing growth factor I.";  "Angela A., Tischer E., Graves D., Tumolo A., Miller J.,  "Structural analysis of the gene for human acidic fibrobles "Structural analysis of the gene for human acidic fibrobles                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 15-70L-1999 (Rel. 38, Last annotation update) HEPARIN-BINDING (GROWTH FACTOR) HERASOCIA: HOMO Sapiens (Human). EUKARYOCE: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Bukaryote: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Bukaryote: Metazoa; Chordata; Catarrhini; Hominidae; Homo. [1] SEQUENCE FROM N.A. HEDLINE; 8626180; Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; "Human endothelial cell growth factor: cloning, nucleotide science 233:541-545(1986). [2] SEQUENCE FROM N.A. HISSUE-BRAIN STEM; WEDLINE; 8934957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-binding for human class I heparin-binding growth factor 1.";  Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";  Chiu I.M., Wang W.P., Lehtoma K.; "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";  Chocogene 5:755-762(1990). [4] SEQUENCE FROM N.A. SEGUENCE FROM N.A. SEGUENCE FROM N.A. SEGUENCE FROM N.A. SEGUENCE FROM N.A. MEDLINE; 90073637. Mergia A., Tischer E., Graves D., Tumolo A., Miller J.,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 15-70L-1999 (Rel. 38, Last annotation update) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) FGF1 OR FGFA. Homo sapiens (Human). EUKALYOCA: Metazoa; Chordata; Craniata; Vertebrata; Butelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] EUKALYOCA: Metazoa; Chordata; Craniata; Vertebrata; Butelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [2] SEQUENCE FROM N.A. HUMAN endothelial cell growth factor: cloning, nucleotide and chromosome localization."; Channon endothelial cell growth factor: cloning, nucleotide and chromosome localization."; SEQUENCE FROM N.A. TISSUE-BRAIN STEM; WADDINE; 89343957. SEQUENCE FROM N.A. TISSUE-BRAIN STEM; TISSUE-BRAIN  | 15-70L-1999 (Rel. 38, Last annotation update)  HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) (BETA-COR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) (BOWN STATE OF THE S | 15-70L-1999 (Rel. 38, Last annotation update). HEPARIN-BINDING (GROWTH FACTOR) PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) PETRA. HEPARIN-BINDING (GROWTH FACTOR) PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) PETRA. HOMO SADIENS (Human). EUKATYOCE: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Bukaryote: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Bukaryote: Metazoa; Chordata; Catarrhini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDLINE; 8626180; Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; Acidence 233:541-545(1986). [2] SEQUENCE FROM N.A. MEDLINE; 89343957. WARDLINE; 89343957. WARDLINE; 89343957. WARDLINE; 89343957. WARDLINE; 8936518. MEDLINE; 89026518.  TISSUE-BRAIN STEM; WADLINE; 90265618.  TISSUE-BRAIN STEM; WADLINE; 90265618.  Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";  "Alternative splicing generates two forms of mRNA coding for heparin-binding growth factor 1.";  (4)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 15-70L-1999 (Rel. 38, Last annotation uçcate) 15-70. 15-70. 15-70. 16-70. 16-70. 17-70. 18-70. 18-70. 18-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. 19-70. | 15-70L-1999 (Rel. 38, Last annotation uçcate) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) HETA.  HOMO SAPLENS (HUMAN). EUKALYOCA: Metazoa; Chordata; Craniata; Vertebrata; Butelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. SEQUENCE FROM N.A. MEDLINE; 86261805.  JAYE M., HOWK R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; "ESQUENCE FROM N.A. TISSUE-BRAIN STEM; WEDLINE; 89343957. WEDLINE; WENDLINE; WENDLINE; WEDLINE; WEDLINE; WEDLINE; WEDLINE; WEDLINE; WEDLINE; PO265618. TISSUE-BRAIN STEM; WEDLINE; 9026518. Chiu I.M., Wang W.P., Lehtoma K.;                                                                                            
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 15-70L-1999 (Rel. 38, Last annotation uçcate) 15-70L-1999 (Rel. 38, Last annotation uçcate) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) BETRA. HOMO SAPPIENS (Human). EUKATYOCA: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] EUKATYOCA: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] MEDLINE; 86261805. JAYO M., HOWK N., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cleal growth factor: cloning, nucleotide and chromosome localization."; "Clence 233:541-545(1986). [2] SCIENCE FROM N.A. TISSUE-BRAIN STEM; WADDLINE; 8934957. WADDLINE; 8934957. "Cloning of the gene coding for human class I heparin-bindifactor and its expression in fetal tissues."; MCDLINE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; SOUGHER FROM N.A. SECOUNCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 90265618.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 15-70L-1999 (Rel. 38, Last annotation update) HEPARIN-BINDING (GROWTH FACTOR) HEPARIN-BINDING (GROWTH FACTOR) HEPARIN-BINDING (GROWTH FACTOR) HEPARIN-BINDING (GROWTH FACTOR) HEPARIN-BIRADING (HUMAN). HOW SADIENS (HUMAN). HOW SADIENS (HUMAN). HOW R., Metazoa; Chordata; Craniata; Vertebrata; Butelec Bukaryota; Metazoa; Chordata; Catarrhini; Hominidae; Homo. [1] HOMMAIla; Béldela0; HOW R., Burgess W., Ricca G.A., Chiu IM., Raver O' Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; "Science 233:541-545(1986).  TISSUE-BRAIN STEM; WADDINE; 8934957. WADDINE; 8934957. "Cloning of the gene coding for human class I heparin-bindifactor and its expression in fetal tissues."; MOI. Cell. Biol. 9:2387-2395(1989). TISSUE-BRAIN STEM; TISSUE-BRAIN STEM;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 15-70L-1999 (Rel. 38, Last annotation update) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) HOMO Sapiens (Human). EUKATYOLA: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammania: Eutheria; Primates; Catarrhini; Hominidae; Homo. (1) SEQUENCE FROM N.A. MEDLINE; 86261805. MEDLINE; 86261805. MEDLINE; 86261805. MEDLINE; 86261805. MACIAGA T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; SCIENCE FROM N.A. SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 89343957. MADLINE; 89343957. MADLINE; 89343957. MEDLINE; 89343957. MEDLINE; 89343957. MEDLINE; 89343957. MEDLINE; 89343957. MEDLINE; 89343957. MACIAGA T. Krishnan I., Chiu I.M.; MACIONING of the gene coding for human class I heparin-bindifactor and its expression in fetal tissues."; MOI. Cell. Biol. 9:2387-2395(1989). SEQUENCE FROM N.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 15-70L-1999 (Rel. 38, Last annotation uçcate) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA. HOMO SAPPENS (Human). EUKALYOCA: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] EUKALYOCA: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] MEDLINE; 86261805. JAYP M., HOWK R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothalial ceal growth factor: cloning, nucleotide and chromosome localization."; "Human endothalial coll growth factor: cloning, nucleotide Science 233:541-545(1986).  SEQUENCE FROM N.A. TISSUE-BRAIN STEM; MEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-bindifactor and its expression in fetal tissues."; MCDL Cell. Biol. 9:2387-2395(1989). | 15-70L-1999 (Rel. 38, Last annotation uçcate). HEPARIN-BINDING (GROWTH FACTOR) PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) PETA. HEPARIN-BINDING (GROWTH FACTOR) PETA. HOMO SADIENS (Human). EUKATYOER: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Bukaryota: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Manmaila; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] SEQUENCE FROM N.A. HEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O' Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; Science 233:541-545(1986).  SEQUENCE FROM N.A. TISSUE-BRAIN STEM; WEDLINE; 89343957. WADDINE; 89343957. WADDINE; 89343957. WADDINE; 80343957. WADDINE; 80343957. WADDINE; 8034957.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 15-70L-1999 (Rel. 38, Last annotation uçcate). HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF)
(BETA-ENDOTHELIAL CELL GROWTH FACTOR) HETA.  FGF1 OR FGFA. Homo sapiens (Human). Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammania: Eutheria: Primates; Catarrhini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; [2] Science 233:541-545(1986). TISSUE-BRAIN STEM: MEDLINE; 89343957. Wang W.P., Lehtcoma K., Varban M.L., Krishnan I., Chiu I.M.; "Cloning of the gene coding for human class I heparin-bindi factor and its expression in fetal tissues.";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 15-70L-1999 (Rel. 38, Last annotation update). HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA. HOMO Saphens (Human). EUKALYOCA: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] EUKALYOCA: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] MEDLINE; 86261805. JAY9 M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothalial coell growth factor: cloning, nucleotide and chromosome localization."; Science 233:541-545(1986).  Science 233:541-545(1986). TISSUE-BRAIN STEM; MEDLINE; Rishnan I., Chiu I.M.; "Chiu I.M.; "Choning of the gene coding for human class I heparin-bindi                                                       | 15-7UL-1999 (Rel. 38, Last annotation update). HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) (BETA). FGF1 OR FGFA. HOMO Sapiens (Human). Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver Jaye M., Howk R., Madi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; Science 233:541-545(1986). [2] SEGUENCE FROM N.A. TISSUE-BRARIN STEM; MEDLINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 15-7UL-1999 (Rel. 38, Last annotation uçcate) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA). FGF1 OR FGFA. HOMO Sapiens (Human). EUKATYOCA: MEDIAZOA; Chordata; Craniata; Vertebrata; Eutelec Mammania; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDILINE; 86261805. Jaye M., HOWK R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; Science 233:541-545(1986). TISSUE-BRAIN STRA. SEGDENCE FROM N.A. SEGDENCE FROM N.A. SEGDENCE FROM N.A. MEDLINE; 89343957.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 15-70L-1999 (Rel. 38, Last annotation uçcate). HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA.  HOMO SAPPLENS (HUMAN). EUKALYOCA: Metazoa; Chordata; Craniata; Vertebrata; Butelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] EUKALYOCA: Metazoa; Chordata; Craniata; Vertebrata; Butelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] EDGUENCE FROM N.A. MEDLINE; 86261805. JAYP M., HOWK R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothalial ceall growth factor: cloning, nucleotide and chromosome localization."; Science 233:541-545(1986).  ILSUE-BRAIN STEM;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 15-70L-1999 (Rel. 38, Last annotation update). HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA). FGF1 OR FGFA. FGF1 OR FGFA. Home sapiens (Human). Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. (1) SEQUENCE FROM N.A. MEDLINE; 86261805. Jaya M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; Science 233:541-545(1986). SEQUENCE FROM N.A.                                                                                                                                                                                                                                                                                                                                                                                                                               
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 15-70L-1999 (Rel. 38, Last annotation uçate). HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA). FGF1 OR FGFA. HOMO Sapiens (Human). Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammania; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDINIE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; Science 233:541-545(1986).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 15-70L-1999 (Rel. 38, Last annotation update). HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA.  HOMO Saphens (Human). EUKAIYOCA: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] SEDUENCE FROM N.A. MEDLINE; 86261805. JAYP M., HOWK R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothalial ceall growth factor: cloning, nucleotide science 233:541-545(1986).                                                                                                                                                              | 15-70L-1999 (Rel. 38, Last annotation update). HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA). FGF1 OR FGFA. HOME Sapiens (Human). Eukaryota: Metazoa: Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. (1) SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization.";                                                                                                                                                                                                                                                                      | 15-701-1999 (Rel. 38, Last annotation update). HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA). HGF1 OR FGFA. HOMO Sapiens (Human). Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammania; Eutheria; Primates; Catarrhini; Hominidae; Homo. (1) SEQUENCE FROM N.A. MEDILINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 15-70L-1999 (Rel. 38, Last annotation update). HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA). FGF1 OR FGFA. HOMO Sapiens (Human). Eukaryota: Metazoa: Chordata; Craniata; Vertebrata; Eutelec Mammalia: Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDLINE: 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.). "Human endothelial cell growth factor. Cloning incledified                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 15-7UL-1999 (Rel. 38, Last annotation uçdate). HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA). FGF1 OR FGFA. Homo sapiens (Human). Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. (1) SEQUENCE FROM N.A. MEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciaq T., Drohan W.N.;                                                                                                                                                                                                                                                                                                         | 15-701-1999 (Rel. 38, Last annotation update). HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) 1 PRECURSOR (HBGF) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) 1 FGF1 OR FGFA. HOMO Sapiens (Human). EUKARYOCA: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; HOMO. [1] SEQUENCE FROM N.A. MEDLINE; 86261805. JAye M., HOWA K., Burgess W., Ricca G.A., Chiu IM., Raver                                                                                                                                                                                                                                                                                                                                                                            | 15-7UL-1999 (Rel. 38, Last annotation update). HEPARIN-1910 UG GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA). FGF1 OR FGFA. HOME SAPIENS (HUMAN). EUKARYOCA: Metazoa: Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini;
Hominidae; Homo. [1] SEQUENCE FROM N.A. MEDLINE; 86261805.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 15-7UL-1999 (Rel. 38, Last annotation uçoate). HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA). FGF1 OR FGFA. Homo sapiens (Human). Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammania; Eutheria; Primates; Catarrhini; Hominidae; Homo. SEQUENCE FROM N.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 15-JUL-1999 (Rel. 38, Last annotation update) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 15-JUL-1999 (Rel. 38, Last annotation update). HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 15-7UL-1999 (Ref. 38, Last annotation update). HEPARIN-BINDING GROWIF FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWIN BACTOR).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                           
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 13-AUG-1987                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | P05230; P075<br>13-AUG-1987                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | FGF1_HUMAN<br>P05230; P075<br>13-AUG-1987                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| FGF1_HUMAN FGF1_HUMAN FGF1_HUMAN FGF1_HUMAN FGF1_HUMAN FGF1_HUMAN FGF1_1997 (Rel. 05, Created) 13-A0G-1987 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 03, Last sequence update) 15-JUL-1999 (Rel. 03, Last sequence update) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) BETA) HOMO SADJENS (HUMAN)  EUKATYOCA: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  EUKATYOCA: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  [1] SEQUENCE FROM N.A.  TISSUE-BRAIN STEM; WEDLINE; 89343957. WARD M.A.  TISSUE-BRAIN STEM; WEDLINE; 89343957. WAND W.A.  TISSUE-BRAIN STEM; WALL Call. Biol. 9:2387-2395(1989).  [3] FROUNCE FROM N.A.  TISSUE-BRAIN STEM; WEDLINE; 90265618  [4] SEQUENCE FROM N.A.  TISSUE-BRAIN STEM; WEDLINE; 90373637.  Alternative splicing generates two forms of mRNA coding fon heparin-binding growth factor 1."; Chiu I.M., Wang W.P., Lehtoma K.; MEDLINE; 90373637.  MEDLINE; 9 | FGF1_HUMAN STANDARD; PRT; 155 AA.  FGF1_HUMAN STANDARD; PRT; 155 AA.  FGF1_HUMAN PO7502;  13-AUG-1987 (Rel. 05, Last sequence update) 13-AUG-19987 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 38, Last annotation update) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) HEDRAN FGF1 OR FGFA.  Manmalia: Eutheria; Primates; Catarrhini; Hominidae; Homo.  [1] EURAL SECONDER FROM N.A.  MEDLINE: 86261805.  JAYE M., HOWK R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization.";  [2] SECUENCE FROM N.A.  TISSUE-BRAIN STEM; MEDLINE: 8934397.  MEDLINE: 8934397.  MEDLINE: 8934397.  MEDLINE: 9034587.  MODI. Cell. Biol. 9:2387-2395(1989).  TISSUE-BRAIN STEM; MEDLINE: 90265618  CHU I.M., Wang W.P., Lehtoma K.;  "Alternative splicing generates two forms of mRNA coding fooncogene 5:755-762(1990).  [4] SECUENCE FROM N.A.  TISSUE-BRAIN STEM; MEDLINE: 90265618  MEDLINE: 903767.  "Alternative splicing generates two forms of mRNA coding fooncogene 5:755-762(1990).  [4] SECUENCE FROM N.A.  SECUENCE FROM N.A.  TISSUE-BRAIN STEM; MEDLINE: 903767.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | FGF1_HUMAN STANDARD; PRT; 155 AA.  FGF1_HUMAN STANDARD; PRT; 155 AA.  13-AUG-1987 (Rel. 05, Cceated) 13-AUG-1997 (Rel. 05, Last sequence update) 13-AUG-1999 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 06, Last annotation update) 16-JUL-1999 (Rel. 06, Last annotation update) 17-JUL-1999 (Rel. 06, Last annotation update) 17-JUL-1999 (Rel. 06, Last annotation update) 18-JUL-1999 (Rel. 06, Lentoma K., Varban M.L., Krishnan I., Chiu I.M., Redeloctor and its expression in fetal tissues."; 17-SSUE-BRAIN STEM;  | FGF1_HUMAN STANDARD; PRT; 155 AA.  FGF1_HUMAN STANDARD; PRT; 155 AA.  FGF1_HUMAN STANDARD; PRT; 155 AA.  13-AUG-1987 (Rel. 05, Careated) 13-AUG-1987 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 08, Last annotation update) 16-JUL-1999 (Rel. 08, Last annotation update) 17 SEQUENCE FROM N.A. 18 SEQUENCE FROM N.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | FGF1_HUMAN STANDARD; PRT; 155 AA.  FGF1_HUMAN STANDARD; PRT; 155 AA.  13-AUG-1987 (Rel. 05, Careated) 13-AUG-1987 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 38, Last annotation update) 15-JUL-1999 (Rel. 38, Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; RESUE-BRAIN STEM; MODI. WE sepression in fetal tissues."; MODI. 18: 90265618 15-JUL-1990 (Part of the gene coding for human class 1 heparin-binding factor and its expression in fetal tissues."; MODI. 18: 90265618 15-JUL-1990 (Rel. 912387-2395(1989). 15-JUL-1990 (Rel. 912387-2395(1989). 16-JUL-1990 (Rel. 912090). 16-JUL-1990 (Rel. 912090). 16-JUL-1990 (Rel. 912090).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | FGF1_HUMAN STANDARD; PRT; 155 AA.  FGF1_HUMAN STANDARD; PRT; 155 AA.  FGF1_HUMAN P07502;  13-AUG-1987 (Rel. 05, Last sequence update) 13-AUG-19987 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 38, Last annotation update) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) HEDRA.  FGF1 OR FGFA.  Mammalia: Eutheria; Primates; Catarrhini; Hominidae; Homo.  SEQUENCE FROM N.A.  MEDLINE: 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization.";  SEGUENCE FROM N.A.  TISSUE-BRAIN STEM;  MEDLINE: 89343957.  Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  Cloning of the gene coding for human class 1 heparin-bindi factor and its expression in fetal tissues.";  MOL. Cell. Biol. 9:2387-2395(1989).  TISSUE-BRAIN STEM;  MEDLINE; 90265618  TISSUE-BRAIN STEM;  MEDLINE; 90265618  TISSUE-BRAIN STEM;  MEDLINE; 90265618  MALLernative splicing generates two forms of mRNA coding fo                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | FGF1_HUMAN STANDARD; PRT; 155 AA. P05230; P07502; 13-AUG-1987 (Rel. 05, Cateated) 13-AUG-1997 (Rel. 05, Last sequence update) 13-AUG-1999 (Rel. 08, Last annotation update) 15-JUL-1999 (Rel. 08, Last annotation update) 16-JUL-1999 (Rel. 08, Last annotation update) 17-JUL-1999 (Rel. 08, Last annotation update) 18-JUL-1999 (Rel. 08, Last annotation update) 18-JUL-1999 (Rel. 08, Last annotation update) 18-JUL-1999 (Rel. 08, Leathone (Loning of the gene coding for human class 1 heparin-bindifactor and its expression in fetal tissues."; 18-JUL-1990 (Rel. 19-19-19-19-19-19-19-19-19-19-19-19-19-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | FGF1_HUMAN STANDARD; PRT; 155 AA.  FGF1_HUMAN STANDARD; PRT; 155 AA.  FGF1_HUMAN PO7502;  13-AUG-1987 (Rel. 05, Last sequence update) 13-AUG-1987 (Rel. 05, Last sequence update) 15-AUG-1999 (Rel. 08, Last annotation update) 15-JUL-1999 (Rel. 08, Last annotation update) 15-JUL-1999 (Rel. 08, Last annotation update) 15-JUL-1999 (Rel. 08, Last annotation update) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) FGF1 OR FGFA.  FGF1 OR FGFA.  FGRAD.  FGRAD.  FGRAD.  FGRAD.  FGRAD.  FGRAD.  FGRAD.  FORTA-ENDOTHELIAL CELL GROWTH FACTOR) FGRAD.  FGRAD. | FGF1_HUMAN STANDARD; PRT; 155 AA.  FGF1_HUMAN STANDARD; PRT; 155 AA.  13-AUG-1987 (Rel. 05, Careated) 13-AUG-1987 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 05, Last annotation update) 15-JUL-1999 (Rel. 38, Last annotation update) 16-JUL-1999 (Rel. 38, Lehtona K., Varban M.L., Krishnan I., Chiu I.M.; REDINE; 89343957. Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.; Choling of the gene coding for human class 1 heparin-bindifactor and its expression in fetal tissues."; 123 (Loning of the gene coding for human class 1 heparin-bindifactor and its expression in fetal tissues."; 123 (Loning of the gene coding for human class 1 heparin-bindifactor and its expression in fetal tissues."; 123 (Loning of the gene coding for human class 1 heparin-bindifactor and its expression in fetal tissues."; 123 (Loning of the gene coding for human class 1 heparin-bindifactor and its expression in fetal tissues."; 125 (Loning of the gene coding for human class 1 heparin-bindifactor and its expression in fetal tissues."; 125 (Lehtona Coding M.A.)                                                                                                                                                                                                                                                                                                                                                       | FGF1_HUMAN STANDARD; PRT; 155 AA.  FGF1_HUMAN STANDARD; PRT; 155 AA.  13-AUG-1987 (Rel. 05, Cceated) 13-AUG-1997 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 08, Last annotation update) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) RETO OR FGFA.  HOMO Saplens (Human). FGFI OR FGFA.  Mammalia: Eutheria; Primates; Catarrhini; Hominidae; Homo.  (1) SEQUENCE FROM N.A.  MEDLINE; 86261805. JAYP M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S. Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization.";  (2) Science 233:541-545(1986).  (2) SCIENCE FROM N.A.  TISSUE-BRAIN STEM; MEDLINE; 89343957. WEDLINE; 89343957. WEDLINE; 80343957.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | FGF1_HUAN FGF1_HUAN FGF1_HUAN FGF1_HUAN FGF1_HUAN FGF1_HUAN FO8230; FGF1_HUAN FO8230; FGF1_OB707 (Rel. 05, Careated) 13-AUG-1987 (Rel. 05, Last sequence update) 15-AUG-19987 (Rel. 08, Last annotation update) 15-JUL-1999 (Rel. 03, Last annotation update) HEPARIN-BINDING GROWTH FACTOR I PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) FGF1 OR FGFA. HOMO Sapiens (Human). FGF1 OR FGFA. HOMO Sapiens (Human). FGROWTH FACTOR) PRIMATES; Catarrhini; Hominidae; Homo. (1) SEQUENCE FROM N.A. SEQUENCE FROM N.A. FRAMEN GA11 S., Maciag T., Drohan W.N.; FHUMAN endothelial cell growth factor: cloning, nucleotide and chromosome localization."; Science 233:541-545(1986). FISSUE-BRAIN STEM; WEDLINE; 89343957. WANDINE; 89343957. FISSUE-BRAIN STEM; WANDINE; By 3343957. FISSUE-BRAIN STEM; WANDINE; Gentom K., Varban M.L., Krishnan I., Chiu I.M.; Cloning of the gene coding for human class I heparin-bindifactor and its expression in fetal tissues."; FGIONING CELL BIOL. 9:2387-2395(1989).                               | FGF1_HUMAN STANDARD; PRT; 155 AA.  FGF1_HUMAN STANDARD; PRT; 155 AA.  13-AUG-1987 (Rel. 05, Last sequence update) 13-AUG-1997 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 08, Last annotation update) 15-JUL-1999 (Rel. 38, Last annotation update) 16-JUL-1999 (Rel. 38, Lenton update) 17-JUL-1999 (Rel. 38, Lenton update) 18-JUL-1999 (Rel. 38, Lenton up | FGF1_HUMAN STANDARD; PRT; 155 AA.  FGF1_HUMAN STANDARD; PRT; 155 AA.  13-AUG-1987 (Rel. 05, Casted) 13-AUG-1997 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 08, Last annotation update) 16-JUL-1999 (Rel. 08, Last annotation update) 17-JUL-1999 (Rel. 08, Last annotation update) 18-JUL-1999 (Rel. 08, Lettoma K., Varban M.L., Krishnan I., Chiu I.M.; 18-JUL-1999 (Rel. 09, Lettoma K., Varban M.L., Krishnan I., Chiu I.M.; 18-JUL-1999 (Rel. 09, Lettoma K., Varban M.L., Krishnan I., Chiu I.M.; 19-JUL-1999 (Rel. 09, Lettoma K., Varban M.L., Krishnan I., Chiu I.M.; 19-JUL-1999 (Rel. 09, Lettoma K., Varban M.L., Krishnan I., Chiu I.M.; 19-JUL-1999 (Rel. 09, Lettoma K., Varban M.L., Krishnan I., Chiu I.M.; 19-JUL-1999 (Rel. 09, Lettoma K., Varban M.L., Krishnan I., Chiu I.M.; 19-JUL-1999 (Rel. 09, Lettoma K., Varban M.L., Krishnan I., Chiu I.M.; 19-JUL-1999 (Rel. 09, Lettoma K., Varban M.L., Krishnan I., Chiu I.M.; 19-JUL-1999 (Rel. 09, Lettoma K., Varban M.L., Krishnan I., Chiu I.M.; 19-JUL-1999 (Rel. 09, Lettoma K., Varban M.L., Krishnan I., Chiu I.M.; 19-JUL-1999 (Rel. 09, Lettoma K., Varban M.L., Krishnan I., Chiu I.M.; 19-JUL-1999 (Rel. 09, Lettoma K., Varban M.L., Krishnan I., Chiu I.M.; 19-JUL-1999 (Rel. 09, Lettoma K., Varban M.L., Krishnan I., Chiu I.M.; 19-JUL-1999 (Rel. 09, Lettoma M.L., Krishnan I., Chiu I.M.; 19-JUL-1999 (Rel. 09, Lettoma K., Varban M.L., Krishnan I., Chiu I.M.; 19-JUL-1999 (Rel. 09, Lettoma M.L., Krishnan I., Chiu I.M.; 19-JUL-1999 (Rel. 09, Lettoma M | FGF1_HUMAN STANDARD; PRT; 155 AA.  FGF1_HUMAN STANDARD; PRT; 155 AA.  FGF1_HUMAN STANDARD; PRT; 155 AA.  13-AUG-1987 (Rel. 05, Created) 13-AUG-1987 (Rel. 05, Last sequence update) 15-AUG-1999 (Rel. 08, Last annotation update).  HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR)  FGF1 OR FGFA.  HOMO Sapiens (Human).  FGRIOR FGFA.  HOMO Sapiens (Human).  FGRIOR FGFA.  HOMO Sapiens (Human).  SEQUENCE FROM N.A.  SEQUENCE FROM N.A.  SEQUENCE FROM N.A.  WEDLINE; 8626108 N.A.  FRAMEN AND HOWK R., Burgess W., Ricca G.A., Chiu IM., Raver O' Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization.";  SCIENCE 233:541-545(1986).  TISSUE-BRAIN STEM;  WEDLINE; 89343957.  WAND W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  "Cloning of the gene coding for human class 1 heparin-bindi | FGF1_HUMAN STANDARD; PRT; 155 AA.  FGF1_HUMAN STANDARD; PRT; 155 AA.  13-AUG-1987 (Rel. 05, Careated) 13-AUG-1987 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 38, Last annotation update) 16-JUL-1999 (Rel. 38, Lenders) 17-Muman endothelial cell growth factor: cloning, nucleotide and chromosome localization, Science 233:541-545(1986). 17-SEQUENCE FROM N.A. 17-SEGUENCE F   | FGF1_HUMAN STANDARD; PRT; 155 AA.  FGF1_HUMAN PO7502;  13-AUG-1987 (Rel. 05, Last sequence update) 13-AUG-19997 (Rel. 05, Last sequence update) 13-AUG-1999 (Rel. 08, Last annotation update) 15-JUL-1999 (Rel. 38, Last annotation update) 15-JUL-1999 (Rel. 38, Last annotation update) 15-JUL-1999 (Rel. 38, Last annotation update) 15-MERIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) 15-JUL-1999 (Rel. 38, Last annotation update) 16-JUL-1999 (Rel. 38, Last annotation update) 17-JUL-1999 (Rel. 38, Maciag T., Drohan W.N.; 17-JUL-1999 (Rel. 38, Maciag T., Drohan W.N.; 17-JUL-1999 (Rel. 38, Rel. 38, Maciag T., Drohan W.N.; 17-JUL-1999 (Rel. 38, Rel. 38, Re | FGF1_HUMAN STANDARD; PRT; 155 AA.  FGF1_HUMAN STANDARD; PRT; 155 AA.  FGF1_HUMAN STANDARD; PRT; 155 AA.  13-AUG-1987 (Rel. 05, Created) 13-AUG-1987 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 38, Last annotation update). HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) FGF1 OR FGFA.  HOMO sapiens (Human). FGF1 OR FGFA.  HOMO sapiens (Human).  ELKALYOCA: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Betaryota: Metazoa; Chordata; Catarrhini; Hominidae; Homo.  [1] SEQUENCE FROM N.A.  MEDLINE; 86261805.  JAye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O' Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization.";  SCIENCE FROM N.A.  TISSUE-BRAIN STEM;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | FGF1_HUMAN STANDARD; PRT; 155 AA.  FGF1_HUMAN STANDARD; PRT; 155 AA.  13-AUG-1987 (Rel. 05, Last sequence update) 13-AUG-19987 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 38, Last annotation update) 15-JUL-1999 (Rel. 38, Lengels update) 16-JUL-1999 (Rel. 38, Lengels update) 17-JUL-1999 (Rel. 38, Lengels update) 18-JUL-1999 (Rel. 38, Lengels update) | FGF1_HUMAN STANDARD; PRT; 155 AA. P05230; P07502; 13-AUG-1987 (Rel. 05, Last sequence update) 13-AUG-19997 (Rel. 05, Last sequence update) 13-AUG-1999 (Rel. 08, Last annotation update) 15-JUL-1999 (Rel. 38, Last annotation update) 15-JUL-1999 (Rel. 38, Last annotation update) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA. FGF1 OR FGFA. Homo sapiens (Human). FGF1 OR FGFA. Mammalia: Eutheria; Primates; Catarrhini; Hominidae; Homo. [1] KEDLINE; 86261805. Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; Science 233:541-545(1986).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | FGF1_HUMAN STANDARD; PRT; 155 AA.  FGF1_HUMAN STANDARD; PRT; 155 AA.  FGF1_HUMAN STANDARD; PRT; 155 AA.  13-AUG-1987 (Rel. 05, Created) 13-AUG-1987 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 38, Last annotation update). HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) FGF1 OR FGFA.  HOMO Sapiens (Human). FGR1 OR FGFA.  HOMO Sapiens (Human).  ELMARIYOLE ROM N.A.  SEQUENCE FROM N.A.  MEDLINE; 86261805.  JAye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide and chromsome localization.";  Science 233:541-545(1986). | FGF1_HUMAN STANDARD; PRT; 155 AA.  FGF1_HUMAN STANDARD; PRT; 155 AA.  13-AUG-1987 (Rel. 05, Last sequence update) 13-AUG-19987 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 08, Last annotation update) 15-JUL-1999 (Rel. 38, Last annotation update) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) FGF1 OR FGFA.  HOMO Saplens (Human).  EUKARJOCIA: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammanial; Eutheria; Primates; Catarrhini; Hominidae; Homo.  SEQUENCE FROM N.A.  MEDLINE: 8626180.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O' Brien S.J., Modi W.S., Maciag T., Drohan W.N.;  "Human endothelial cell growth factor: cloning, nucleotide and chromosome localization."; | FGF1_HUAN STANDARD; PRT; 155 AA. P05230; P07502; 13-AUG-1987 (Rel. 05, Created) 13-AUG-1987 (Rel. 05, Last sequence update) 13-AUG-1987 (Rel. 05, Last sequence update) 15-AUG-1989 (Rel. 38, Last annotation update) 15-AUG-1989 (Rel. 38, Last sequence update) 15-AUG-1987 (Rel. 38, Last sequence Indoorance Record (Rel. 38, Last Sequence From N.A. MEDIJINE; 86261805. 13ye M. Howk R. Burgess W., Ricca G.A., Chiu IM., Raver O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.; "Human endothelial cell growth factor: cloning, nucleotide                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | FGF1_HUMAN STANDARD; PRT; 155 AA.  FGF1_HUMAN STANDARD; PRT; 155 AA.  13-AUG-1987 (Rel. 05, Created) 13-AUG-1987 (Rel. 05, Last sequence update) 15-AUG-1999 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 38, Last annotation update).  HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) FGF1 OR FGFA.  HOMO Sapiens (Human).  EUKARYOta; Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammania; Eutheria; Primates; Catarrhini; Hominidae; Homo.  SEQUENCE FROM N.A.  MEDLINE: 86261805.  Jaye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver O' Shien S.J., Modi W.S., Maciag T., Droham W.N.)  FHIMBA ON CHANGA CHANCH FACTOR.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | FGF1_HUMAN STANDARD; PRT; 155 AA. P05230; P07502; 13-AUG-1987 (Rel. 05, Last sequence update) 13-AUG-19997 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 08, Last annotation update). 15-JUL-1999 (Rel. 08, Last annotation update). HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) BETA. HOMO Sapiens (Human). HOMO Sapiens (Human). HOMIN STANDARD W.N.; Raver JO'Brien S.J., Modi W.S., Maciaq T., Drohan W.N.;                                                                                                                            | FGF1_HUAN STANDARD; PRT; 155 AA.  FGF1_HUAN STANDARD; PRT; 155 AA.  FGF1_HUAN STANDARD; PRT; 155 AA.  13-AUG-1987 (Rel. 05, Created) 13-AUG-1987 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 38, Last annotation update). HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) FGF1 OR FGFA.  HOMO Sapiens (Human). FGR1 OR FGFA.  HOMO Sapiens (Human).  EUKARYOCA: Metazoa; Chordata; Craniata; Vertebrata; Eutelec Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  [1] MEDLINE; 86261805.  JAye M., Howk R., Burgess W., Ricca G.A., Chiu IM., Raver                                                                                                                                                                                                                                      | FGF1_HUMAN STANDARD; PRT; 155 AA.  FGF1_HUMAN STANDARD; PRT; 155 AA.  13-AUG-1987 (Rel. 05, Last sequence update) 13-AUG-1999 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 38, Last annotation update).  HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR)  FGF1 OR FGFA.  HOMON Saplens (Human).  FGRI OR FGFA.  HOMON Saplens (Human).  FGRI OR FGFA.  HOMON Saplens (Human).  SEQUENCE FROM N.A.  MEDLINE; 86261805.                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | FGF1_HUMAN STANDARD; PRT; 155 AA. P05230; P07502; 13-AUG-1987 (Rel. 05, Created) 13-AUG-1987 (Rel. 05, Last sequence update) 15-AUG-1987 (Rel. 05, Last sequence update) 15-VUL-1999 (Rel. 38, Last annotation update) 15-VUL-1999 (Rel. 38, Last ENDOTABLIAL CELL GROWTH FACTOR) HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR; (HBGF-1) (ACIDIC GROWTH FACTOR) FGFA (Rel. 08) FGFA (Human). EUKALYOCA: Metazoa; Chordata; Craniata; Vertebrata; Butelec Mammalia: Eutheria; Primates; Catarrhini; Hominidae; Homo. SEQUENCE FROM. N.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | FGF1_HUMAN STANDARD; PRT; 155 AA. P05230; P07502; 13-AuG-1987 (Rel. 05, Created) 13-AuG-1987 (Rel. 05, Last sequence update) 13-AuG-1989 (Rel. 38, Last annotation update) 15-UL-1999 (Rel. 38, Last annotation update) HEPARIN BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) FORTAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | SULT 1 FGF1_HUMAN STANDARD; PRT; 155 AA. FGF1_HUMAN P05230: 13-AUG-1987 (Rel. 05, Created) 13-AUG-1987 (Rel. 05, Last sequence update) 15-AUG-1999 (Rel. 38, Last annotation update). HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | FULT 1 FEGEL HUMAN STANDARD; PRT; 155 AA. FGET HUMAN STANDARD; P05230; P07502; 13-AbG-1987 (Rel. 05, Last sequence update) 13-AbG-1987 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 38, Last annotation update) HERRIN-BINDING GROWTH FACTOR I PRECURSOR; (HBGF-1) (ACIDIC FEDRING BACTOR)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Sur                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | SULT 1<br>FGF1_HUMAN<br>PO5230; P075                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | SULT 1<br>FGF1_HUMAN STANDARD; PRT; 155<br>P05230: P07502:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1<br>GF1_HUMAN STANDARD; PRT: 155                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | RESULT 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

acidic fibroblast

```
MOD_RES
BINDING
BINDING
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; 1
EMBL; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PIR;
PIR;
PIR;
PIR;
PIR;
PDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PIR;
PIR;
                                                     [16]
SO THE FEF WAY A PRESENT OF A PRESENT OF A PROPERTY OF A P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQÜENCE OF 16-49.
MEDLINE: 86275260.
Gautschi P., Frater-Schroeder M., Boehlen P.;
"Partial molecular characterization of endothellal cell mitogens from human brain: acidic and basic fibroblast growth factors.";
                                                                                                                                                                                                                                                                                                                 Zhao X.M., Yeoh T.K., Hiebert M., Frist W.H., Miller G.G.; "The expression of acidic fibroblast growth factor (heparin-binding growth factor-1) and cytokine genes in human cardiac allografts and T
  Wang W.P., Quick D., Balcerzak S.P., Needleman S.W., Chiu I.M.; "Cloning and sequence analysis of the human acidic fibroblast growth factor gene and its preservation in leukemia patients."; Oncogene 6:1521-1529(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Harper J.W., Strydom D.J., Lobb R.R.;
"Human class 1 heparin-binding growth factor: structure and homology
to bovine acidic brain fibroblast growth factor.";
Biochemistry 25:4097-4103(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Blaber M., Disalvo J., Thomas K.A.;
"X-ray crystal structure of human acidic fibroblast growth factor.";
                                                                                                                                                                                            "An acidic fibroblast growth factor protein generated by alternate splicing acts like an antagonist."; J. Exp. Med. 175:1073-1080(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE; 87048871.
Gautschir-Sova P., Mueller T., Boehlen P.;
Amino acid sequence of human acidic fibroblast growth factor.";
Biochem. Biophys. Res. Commun. 140:874-880(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.;
"Hunan brain-derived acidic and basic fibroblast growth factors:
amino terminal sequences and specific mitogenic activities.";
Biochem. Biophys. Res. Commun. 135:541-548(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.; "The complete amino acid sequence of human brain-derived acidic fibroblast growth factor." Biochem. Biophys. Res. Commun. 138:611-617(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Crumley G., Dionne C.A., Jaye M., Transley G., Dionne C.A., Jaye M., The gene for human acidic fibroblast growth factor encodes two upstream exons alternatively spliced to the first coding exon. Biochem. Biophys. Res. Commun. 171:7-13(1990).
                                                                                                                                  MEDLINE; 92202857.
Li Y.L., Kha H., Golden J.A., Migchielsen A.A.J., Goetzl E.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pineda-Lucena A., Jimenez M.A., Nieto J.L., Santoro J., Rico Gimenez-Gallego G.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                X-RAY CRYSTALLOGRAPHY (2.0 ANGSTROMS). MEDLINE; 96194129.
                                                                                                                                                                                                                                                                                                                                                                                                Transplantation 56:1177-1182(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Biochemistry 35:2086-2094(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        human brain: acidic and basic
FEBS Lett. 204:203-207(1986).
                                                                                                                                                                                                                                                                           1-154 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRUCTURE BY NMR OF 24-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE OF 1-40 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE OF 16-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE OF 16-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 16-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          86295741.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE; 94358885.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE OF 16-47.
                                                                                                                                                                                                                                                                                              94069734.
                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE; 90365758.
                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   86296647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       86186784
                                                                                                                                                                            urck E.J.;
                                                                                                                                                                                                                                                                           SEQUENCE (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                             cells.";
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRINTS; PRO0262; ILLHBGF.
PRINTS; PRO0263; HBGFFGF.
PROSITE; PRO0247; HBGFFGF.
Growth factor; Mitogen; Vascularization; Heparin-binding; Acetylation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -1- SUBUNIT: MONOMER.
-!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
THAN DOES BFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -! - SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                       Pineda-Lucena A., Jimenez M.A., Lozano R.M., Nieto J.L., Santoro J.,
                                                                                                                                                                                                                                                                                                                                       factor in
                                                                                                                                                                                                                                                               Pineda-Lucena A., Callego G.;
Rico M., Gimenez-Gallego G.;
Three-dimensional structure of acidic fibroblast growth fact
Three-dimensional analog.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FACTOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
F586E8BFB09F1580 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HEPARIN-BINDING GROWTH
"IH-NWR assignment and solution structure of human growth factor activated by inositol hexasulfate."; J. Mol. Biol. 242:81-98(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACETYLATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; M13361; AAA79245.1; -.
EMBL; X51943; CAA36206.1; -.
EMBL; M30492; AAA52446.1; -.
EMBL; M30490; AAA52446.1; JOINED.
EMBL; M30491; AAA52446.1; JOINED.
                                                                                                                                                                                                                                                                                                                                                                                 J. Mol. Biol. 264:162-178(1996).
[17]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .
Μ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRUCTURE BY NMR OF 25-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15
155
2
28
116
17460 1
                                                                                                                                                                            STRUCTURE BY NMR OF 24-155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CAA46661.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A24662; A24662.
A24820; A24820.
A2586; A2586.
A3365; A33665.
S18217; S18217.
2AFG; L5-OCT-95.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2AXM; 22-APR-98
1RML; 11-NOV-98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1
16
2
24.
113
155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A24301
                                                                                                                                                                                                                 97107535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   M60515; M60516; M23087; M23087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     M23086; 1
S67291; 2
X65778; 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A23553; 1
A24243; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3D-structure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MIM; 131220;
```

Length 155;

```
PRINTS;
                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ô
                                                                                                                                                                                                                                                                                                      Hall J.A., Harris M.A., Malark M., Mansson P.E., Zhou H., Harris S.E., "Characterization of the hamster DDT-1 cell afgF/HGBF-I gene and cDNA and its modulation by steroids.";
J. Cell. Blochem. 43:17-26(1990).
-! FUNCTION: THE HEPRAIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE FOTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                      01-FEE-1994 (Rel. 28, Created)
01-FEB-1994 (Rel. 28, Last sequence update)
15-JUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST
                                                                                                                                                                                                                                                                                                                                                                                      -!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY THAN DOES BFGF.
                                                                                                                                                                                                                                                                                                                                                                                                     -i-SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
PIR: A60721, A60721
HSSP: P06230: 2AKM.
PREAM: PF00167; FCF: 1.
PRINTS: PR00267: ILLHBGF.
PRINTS: PR00267: HBGFFGF.
Growth factor: Mitogen; Vascularization: Heparin-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 77
                                              18 LIDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                      Mesocricetus auratus (Golden hamster).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BY SIMILARITY.
HEPARIN-BINDING GROWTH FACTOR 1.
HEPARIN (POTENTIAL).
41E5EC760E412CC5 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 969; DB 1; Length 155; Pred. No. 8.20e-218;
                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4; Indels
Score 986; DB 1; LA Pred. No. 2.42e-222;
                   1; Mismatches
                                                                                                                                                                  155 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pred. No. 8.20e-
2; Mismatches
                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          16 155 HE
24 28 HE
113 116 HE
155 AA; 17403 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       76.6%;
larity 95.7%;
Conservative
77.98;
97.88;
                                                                                                          138 THYGQKAILFLPLPVSSD 155
                                                                                                                     THYGQKAILFLPLPVSSD 155
                    Conservative
                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         155
28
116
                                                                                                                                                                                                                      GROWTH FACTOR) (AFGF).
                                                                                                                                                                                                                                                                                                                                                                               -! - SUBUNIT: MONOMER
         Local Similarity
hes 135; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
es 132; Conser
                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A. MEDLINE; 90270291.
                                                                                                                                                                                                                                                                    Mesocricetus.
                                                                                                                                                        LT 2
FGF1_MESAU
P34004;
Query Match
Best Local S:
Matches 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
                                    18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  98
                                                      ò
                                                                      요
                                                                                         ŏ
                                                                                                          g
                                                                                                                             ò
                                                                                                                                                                                          SOFFFFS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@lsb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  and its expression in the adult and developing mouse brain.";
J. Biol. Chem. 271:30263-30271(1996).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIGGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                              01-JUL-1989 (Rel. 11, Created)
01-JUL-1989 (Rel. 11, Last sequence update)
15-JUL-1989 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST GROWTH FACTOR)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hebert J.M., Basilico C., Goldfarb M., Haub O., Martin G.R.; "Isolation of cDNAs encoding four mouse FGF family members and carracterization of their expression patterns during embryogenesis."; Dev. Biol. 138:454-463(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -!- SUBUNIT: MONOMER.
-!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                          Mus musculus (Mouse), and Rattus norvegicus (Rat).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Buteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Musinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Characterization of the 1B promoter of fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEGUENCE FROM N.A.
SPECIES-WOORSE: STRAIN-BALB/C;
MEDLINE; 97094746
Alam K.Y., Frostholm A., Hackshaw K.V., Evans J.E., Rotter A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                         SPECIES-RAT;
MEDLINE; 89240051.
GOOGTICH S., Yan G.C., Bahrenburg K., Mansson P.E.;
"The nucleotide sequence of rat heparin binding growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE, 97128312.
Madiai F., Hackshaw K.V., Chiu I.M.;
"Cloning and characterization of the mouse Fgf-1 gene.";
Gene 179:231-236(1996).
   Ŕ
   155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Nucleic Acids Res. 17:2867-2867(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; M30641; AAA37618.1; -.
EMBL; U36459; AAC52969.1; -.
EMBL; U36457; AAC52969.1; JOINED.
EMBL; U36458; AAC52969.1; JOINED.
EMBL; U67610; AAC52907.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; X14232; CAA32448.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PF00167; FGF; 1.
                                                                                                                                                                                                                                             FGF1 OR FGF-1 OR FGFA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HSSP; P05230; ZAXM.
MGD; MGI:95515; FGF1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PIR; S04147; SC4147.
PIR; D37360; D37360.
HSSP; P05230; ZAXM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         [2]
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE; 90201563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SPECIES-MOUSE
MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (HBGF-1
```

```
CHAIN
CHAIN
BINDING
BINDING
CONFLICT
                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                         NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESIDENT SERVICE OF SE
  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                between the Swiss Institute of Bloinformatics and the EMBL outstation—
the European Bioinformatics Institute. There are no restrictions on its
use by non-profit institutions as long as its content is in no way
modified and this statement is not removed. Usage by and for commercial
entities requires a license agreement (See http://www.isb-sib.ch/announce/
or send an email to license@lsb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through a collaboration
                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EUT. J. Biochem. 181:67-73(1989).
-!- FUNCTION: THE HEPARIN BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-FEB-1991 (Rel. 17, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
15-JUL-1999 (Rel. 38, Last sequence update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST GROWTH FACTOR) (ALPHA-ENDOTHELIAL CELL GROWTH FACTOR)
                                                                                                                                                                                                                                                                                                                 41 ANYKRPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 100
                                                                                                                                                                                                                                                                                                                                                                                  81 AMDIEGLLYGSQIPNEECLFLERLEENHYNIYISKKHAEKNWFVGLKKNGSCKRGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                            -!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       THAN DOES BFGF.
                                                                                                                                                                                                                                                                                          21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQYL 80
                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Quinkler W., Masberg M., Bernotat-Danielowski S., Luethe N.,
Sharma H.S., Schaper W.;
"Isolation of heparin-binding growth factors from bovine, porcine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sus scrofa (Pig).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Schmidt M., Sharma H.S., Schott R.J., Schaper W.;
"Amplification and sequencing of mRNA encoding acidic fibroblast
growth factor (aFGF) from porcine heart.";
Blochem. Biophys. Res. Commun. 180:853-859(1991).
                                                                                                                                                                                                                                                    ö
                                                                                        HEPARIN-BINDING GROWTH FACTOR 1.
                                                                                                                                                                                                   Score 966; DB 1; Length 155; Pred. No. 5.16e-217; 3; Mismatches 2; Indels
                                         Growth factor; Mitogen; Vascularization; Heparin-binding. PROPEP
                                                                                                                                                                                                                                                  Indels
                                                              15 HEPARIN-BINDING GROWTH FAC
28 HEPARIN (POTENTIAL)
116 HEPARIN (POTENTIAL)
17418 MW; 8880E4FF0FBA4161 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                152 AA
                       PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                 76.4%; silarity 96.3%; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; X60317; CAA42869.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        141 GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  161 GQKAILFLPLPVSSD 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -! - SUBUNIT: MONOMER
                                                                                   16 1
24
113 1
155 AA;
                                                                                                                                                                                                                      Local Similarity
es 130; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE OF 22-41.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE; 92062117.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE; 89231704
PRINTS; PR00263;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               canine hearts.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FGF1 OR FGF-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TISSUE-HEART
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (FRAGMENT)
                                                                                                                                BINDING
                                                                                                                                                                                                   Query Match
                                                                                                             BINDING
                                                                                                                                                                                                                           Best Loca
Matches
                                                                                      CHAIN
SETTTES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ####999999999999999
                                                                                                                                                                                                                                                                                                                                      ò
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Halley C., Courtois Y., Laurent M.; "Nucleotide sequence of bovine acidic fibroblast growth factor cDNA."; Nucleoic Acids Res. 16:10913-10913(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  23-0CT-1986 (Rel. 02, Created)
01-MAR-1989 (Rel. 10, Last sequence update)
15-0TJ-1999 (Rel. 38, Last annotation update)
15-0TJ-1999 (Rel. 38, Last annotation update)
GROWTH BEDARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HGGF-1) (ACIDIC FIBROBLAST GROWTH FACTOR) (AFGF) (PROSTATROPIN) (ENDOTHELIAL CELL GROWTH FACTOR ENTA AND ALPHA CHAINS) (ACIDIC EXE-DERIVED GROWTH FACTOR II) (EDGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  78 QYLAMDISGLLYGSQIPSEECLFLERLEENHYNIYISKKHAEKNWFVGLKKNGSCKRGPR 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE; 87016918.

Burgess W.H., Mehlman T., Marshak D.R., Fraser B.A., Maciag T.;

Structural evidence that endothelial cell growth factor beta is the precursor of both endothelial cell growth factor alpha and acidic fibroblast growth factor.";

Proc. Natl. Acad. Sci. U.S.A. 83:7216-7220(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          18 LLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Laurent M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bos taurus (Bovine).
Sukaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
Bovidae; Bovinae; Bos.
                                                                                                                                                                                                   ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             18 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG
                                                                                                                                                                              HEPARIN-BINDING GROWTH FACTOR 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                              4; Indels
                                                                                                                                                                                                                                                                                                                                                                                                            Length 152;
PIR; S03954; S03954.
HSSP; P05230; ZAXM.
PFAM; PF00167; FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
PROPEP
                                                                                                                                                   Alterio J., Halley C., Brou C., Soussi T., Courtois Y., "Characterization of a bovine acidic FGF cDNA clone and expression in brain and retina.";
                                                                                                                                                                                                                                                                                                                                                                                                      Score 955; DB 1; L
Pred. No. 4.39e-214;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       155 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OR FGF-1 OR FGFA OR HBGF-1 OR AFGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 75.5%;
Best Local Similarity 95.6%;
Matches 129; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEBS Lett. 242:41-46(1988)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    138 THYGOKAILFLPLPV 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 2-155.
MEDLINE; 87026586.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE; 89078619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE OF 2-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE; 89083506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TISSUE-RETINA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TISSUE-RETINA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LT 5
FGF1_BOVIN
P03968;
```

RA RA REPRESENTATION OF THE REPRESENTATION O

```
PRINTS; PR00262; IL1HBGF.
PRINTS; PR00263; HBGFEGF.
PROSITE; PS00247; HBGFEGF: 1.
Growth factor; Mitogen; Vascularization; Heparin-binding; Acetylation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    41 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLGSAESVGEVYIKSTETGQYL, 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               21 GNYKKPKLLYCSNGGYFLRILPDGTVDGTKDRSDQHIQLQLCAESIGEVYIKSTETGQFL 80
                                                                                                                                                                                                                                                                                                                                               ENDOTHELIAL CELL GROWTH FACTOR BETA. HEPARIN-BINDING GROWTH FACTOR 1. ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     17493 MW; F636641F189F9BFD CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                 ACETYLATION.
HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 917; DB 1; LA Pred. No. 5.62e-204;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FGF1_CHICK STANDARD; PRT; 155 AA. P19596; 01-FEB-1991 (Rel. 17, Created) 01-FEB-1996 (Rel. 33, Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        155 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  72.5%;
llarity 91.9%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; B24663; B24663.
; S02102; S02102.
; IBAR; 31-OCT-93.
; IAFC; 31-OCT-93.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Local Similarity
Matches 124; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       155 AA;
       A25043;
                                               225043;
                                                                                                                                                                                                                                                                                                         3D-structure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TURN
STRAND
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                 MOD_RES
BINDING
BINDING
                                                                                                                                                                                                                                                                                                                       PROPEP
CHAIN
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HELIX
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAND
                                                                                                                                                                                         PFAM;
                                                                                                                                                                                                                                                                                                                                                                                              CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HELIX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         161
                                                                                               PIR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               URN
                                                                         PIR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
ID FG
AC P1
DT 01
DT 01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              염
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Science 251:90-93(1991).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE USED TYPES IN VIVO AND ARE DEFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sharma H.S., Schaper W.;
"Isolation of heparin-binding growth factors from bovine, porcine and canine hearts.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -!- MISCELLANDOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY THAN DOES BFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -! - SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                               Gimenez-Gallego G., Rodkey J., Bennett C., Rios-Candelore M., Disalvo J., Thomas K., "Brain-derived acidic fibroblast growth factor: complete amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
MEDUINE: 91095983.
Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
Hsu B.T., Rees D.C.,
"Three-dimensional structures of acidic and basic fibroblast growth
Crabb J.W., Armes L.G., Carr S.A., Johnson C.M., Roberts G.D., Bordoll R.S., McKeehan W.L.; Complete primary structure of prostatropin, a prostate epithelial cell growth factor.": Biochemistry 25:4988-4993(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE; 86261806.

Abraham J.A., Mergia A., Whang J.L., Tumolo A., Friedman J., Hjerrild K.A., Gospodarowicz D., Fiddes J.C.;

"Nucleotide sequence of a bovine clone encoding the anglogenic protein, basic fibroblast growth factor.";

Science 233:545-548(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Quinkler W., Maasberg M., Bernotat-Danielowski S., Luethe N.,
                                                                                                                                                                                                                                                                                                                                                               Boehlen P., Esch F., Baird A., Gospodarowicz D.;
Arclidc fibroblast growth factor (FGF) from bovine brain:
amino-terminal sequence and comparison with basic FGF.";
EMBO J. 4:1951-1956(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE OF 1-18 FROM N.A.
Philippe J.M., Renaud F., Desset S., Laurent M.;
Submitted (JUL-1992) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                       SEQUENCE OF 16-44, AND COMPOSITION. MEDLINE; 86055750.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eur. J. Biochem. 181:67-73(1989)
                                                                                                                                                                                                                                                  sequence and homologies.";
Science 230:1385-1388(1985)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; M13439; AAA30516.1; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE OF 16-56 FROM N.A. MEDLINE; 86261806.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAA30517.1;
CAA47063.1;
AAA30563.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAA30564.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAA32192.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SUBUNIT: MONOMER.
                                                                                                                                                            86070224.
                                                                                                                                     SEQUENCE OF 16-155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE OF 16-45.
MEDLINE; 89231704.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; M97661; AAA3
PIR; A01385; GKBOA
```

factors.

ö

Gaps

ö

X14032;

EMBL; EMBL;

EMBL; EMBL;

Length 155; Indels ø

```
PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     158 AA; 17374 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; M95707; AAA48617.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   41.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        75; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                 161 GQKAILFLPLPVSSD 175
                                                                                    ,STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    158
34
122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity
                                                                                                                                                                                                                                                                                          [1]
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                          93246053.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    13
30
119
                                                                LT 7
FGF2_CHICK
P48800;
01-FEB-1996 (
                                                                                                                                                                                                      OR FGF-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 8
ID FGF2_BOVIN
                                                                                                                                                                                                                                                                                                                          MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BINDING
                                                                                                                                                                                                                                                                          Gallus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                       -!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY THAN DOES BFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             81 AMDTNGLLYGSQLPGEECLFLERLEENHYNTYISKKHADKNWFVGLKKNGNSKLGPRTHY 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST GROWTH FACTOR) (AFGF) (ALPHA-ENDOTHELIAL CELL GROWTH FACTOR).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -! - SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                  Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21 GNYKKPKLLYCSNGGHFLRILPDGKVDGTRDRSDQHIQLQLSAEDVGEVYIKSTASGQYL 80
                                                                                                                                                                                                                                                                                                                                                                        Risau W., Gautschi-Sova P., Boehlen P.; "Endothelial cell growth factors in embryonic and adult chick brain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
HEPBARN (POTENTIAL).
HEPBARIN (POTENTIAL).
8EDB70545E2B4365 CRC64;
                                                                                                                                                                 MEDLINE; 91347925.
Schnurch H., Risau W.;
Schnurch H., Risau W.;
Bifferentiating and mature neurons express the acidic fibroblast growth factor gene during chick neural development.";
Development 111:1143-1154(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HEPARIN-BINDING GROWTH FACTOR 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                       Martin G.R., Han J.K.;
Submitted (JUL-1995) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                         are related to human acidic fibroblast growth factor.";
EMBO J. 7:959-962(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 916; DB 1; Le
Pred. No. 1.04e-203;
6; Mismatches 7;
15-JUL-1999 (Rel. 38, Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         17322 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; S63263; AAB19629.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; U31863; AAA80310.1; -. EMBL; S63261; AAD13942.1; -. PIR; S02639; S02639.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       72.4%;
ilarity 90.4%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRINTS; PR00262; IL1HBGF
PRINTS; PR00263; HBGFFGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            141 GQKAILFLPLPVSAD 155
                                                                Gallus gallus (Chicken).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HSSP; P05230; ZAXM.
PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        113
155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
Matches 122; Conser
                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                        SEQUENCE OF 22-48
MEDLINE; 88296438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PROPEP
                                                                                                                     Gallus
```

\*\*####88888888888888888888

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -!- SUBUNIT: MONOMER.
-!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 72 RGVVSIKGVSANRFLAMKEDGRLLALKCATEECFFFERLESNNYNTYRSRKYSD--WYVA 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Archosauria; Ayes; Neognathae; Galliformes; Phasianidae; Phasianinae;
                                                           01-FEB-1996 (Rel. 33, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
61-FEB-1996 (Rel. 33, Last annotation update)
GROWTH FACTOR (BEGF).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12 LPALPDDGGGGAFPPGHFKDPKRLYCKNGGFFLRINPDGRVDGVREKSDPHIKLQLQAEE 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            26 VPSPAGARANGTLIDANYKKPKLLYCSNGGHFLRILPDGTVDGTKDRSDQHIQLQLSAES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Borja A.Z., Zeller R., Meijers C.;
"Expression of alternatively spliced brof first coding exons and antisense mRNAs during chicken embryogenesis.";
Dev. Biol. 157:110-118(1993)
-1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC PIVIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES 1VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HEPARIN-BINDING GROWTH FACTOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 158;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HSSP; P09038; 1BFF.
PFAM; PF00167; FGF; 1.
PRINTS; PR00263; HBGFFGF.
PRINTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGFFGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                29; Mismatches 43; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HEPARIN (POTENTIAL).
7B69B684C17F1816 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 530; DB 1; LA
Pred. No. 1.21e-102;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HEPARIN (POTENTIAL)
158 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BY SIMILARITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           130 LKRTGQYKPGPKTGPGQKAILFLPMSAKS 158
```

Ĥ

NA TITIES

155 AA

g

g ò g ò

```
MISCELLANEDUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           127 LKRTGQYKLGPKTGPGQKAILFLPMSAKS 155
                                                                                                                                                                                                                  EMBL; M13440; AAA30518.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       41.4%;
51.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PDB; 1BAS; 31-OCT-93.
PFAM; PF00167; FGF; 1
                                                                                                                                                                                                                                                     A24819; A24819.
A32878; A32878.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      155 AA;
                                                                                                                                                                                                                                       A24663; GKBOB
                                                                                                                                                                                                                                                                                                                                                                                           3D-structure.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                         SITE
SITE
BINDING
BINDING
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAND
TURN
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HELIX
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HELIX
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                         PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                         CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                           CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HELIX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HELIX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 URN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               URN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  URN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   rurn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                rorn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 URN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIGGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE; 87119165.
Ueno N., Balrd A., Esch F., Shimasaki S., Ling N., Guillemin R.;
"Purification and partial characterization of a mitogenic factor from
bovine liver: structural homology with basic fibroblast growth
                             23-OCT-1986 (Rel. 02, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
HERAKIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
GROWTH FACTOR) (BFGF) (PROSTATROPIN) [CONTAINS: KIDNEY-DERIVED GROWTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Esch F., Baird A., Ling N., Ueno N., Hill F., Denoroy L., Klepper R., Gospodarowicz D., Boehlen P., Guillemin R.; Primary structure by bovine pitultary basic fibroblast growth factor (FGF) and comparison with the amino-terminal sequence of bovine brain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Baird A., Esch F., Boehlen P., Ling N., Gospodarowicz D.; "Isolation and partial characterization of an endothelial cell growth factor from the bovine kidney: homology with basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                    Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.; "Human basic fibroblast growth factor: nucleotide sequence, genomic organization, and expression in mammalian cells.": Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Three-dimensional structures of acidic and basic fibroblast growth
                                                                                                                               Bos taurus (Bovine).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE OF 1-9.
MEDILINE; 86295734.
Ueno N., Baird A., Esch F., Ling N., Guillemin R.;
"Isolation of an amino terminal extended form of basic fibroblast
                                                                                                                                                                                                                                                 Abraham J.A., Mergia A., Whang J.L., Tumolo A., Friedman J., Hjerrild K.A., Gospodarowicz D., Fiddes J.C.; "Nucleotide sequence of a bovine clone encoding the anglogenic protein, basic fibroblast growth factor."; Science 233:545-548(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
MEDLINE; 91095983.
Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
Hsu B.T., Rees D.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          acidic FGF.";
Proc. Natl. Acad. Sci. U.S.A. 82:6507-6511(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            growth factor.";
Biochem. Blophys. Res. Commun. 138:580-588(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Regul. Pept. 16:135-145(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Regul. Pept. 12:201-213(1985)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Science 251:90-93(1991).
            23-OCT-1986 (Rel. 02, C
23-OCT-1986 (Rel. 02, L
01-FEB-1996 (Rel. 33, L
HEPARIN-BINDING GROWTH
                                                                                                                                                                                    Bovidae; Bovinae; Bos.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE OF 10-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE; 86016731.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE; 86095426.
                                                                                                                                                                                                              SEQUENCE FROM N.A. MEDLINE; 86261806.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE OF 25-41.
                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A. MEDLINE; 87217066.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE OF 21-40.
                                                                                                                FGF2 OR FGF-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TISSUE-KIDNEY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LISSUE-KIDNEY
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         69 RGVVSIKGVCANRYLAMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVA 126
-!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9 LPALPEDGGSGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPFIKLQLQAEE 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KIDNEY-DERIVED GROWTH FACTOR.
CELL ATTACHMENT SITE (POTENTIAL).
CELL ATTACHMENT SITE (POTENTIAL).
HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ~
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HEPARIN-BINDING GROWTH FACTOR 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRINTS; PR00262; ILJHBGF.
PRINTS; PR00263; HBGFFGF; 1
PR0SITE; PS00247; HBGF_FGF; 1
Growth factor; Mitogen; Vascularization; Heparin-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     17250 MW; BE6CE70FA6107129 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      29; Mismatches 42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 524; DB.1; Louis Pred. No. 4.17e-101;
```

æ

à

```
127 LKRTGQYKLGPKTGPGQKAILFLPMSAKS 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE OF 2-22.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        terminus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   factor.
                                                                                                                                                                                                                                                                                      FGF2 OR FGFB
                                                                                                                        LT 10
FGF2_HUMAN
P09038;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          amino
                      d
                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ï
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RGVVSIKGVCANRYLAMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVA 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                      01-FEB-1991 (Rel. 17, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSIATROPIN).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LPALPEDGGSSAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEE 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                             Ovis aries (Sheep).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Buteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEBS Lett. 224:128-132(1987).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC.
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES.
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE; 88055577.
Simpson R.J., Moritz R.L., Lloyd C.J., Fabri L.J., Nice E.C.,
Rubira M.R., Burgess A.W.;
"Primary structure of ovine pituitary basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DR PRINTS; PRO0263; HBGFPGF.

PRINTS; PRO0263; HBGFPGF.

DR PRONTE; PSO0247; HBGFPGF.

DR PROSITE; PSO0247; HBGFPGF.

DR PROSITE; PSO0247; HBGFPGF.

DR PROSITE; PSO0247; HBGFPGF.

THOMPE TOWTH FACTOR; MICOGEN; MICOGENIA SITE (POTENTIA)

THE ASSETS THACHMENT SITE (POTENTIA)

THE PARIN (POTENTIAL).

THE PARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HEPARIN-BINDING GROWTH FACTOR 2.
CELL ATTACHMENT SITE (POTENTIAL).
CELL ATTACHMENT SITE (POTENTIAL).
HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
B5F2364BA610606D CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pred. No. 1.43e-99;
30; Mismatches 42; Indels
                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
Sutton R., Ward W.G., Raphael K.A., Cam G.R.;
Submitted (SEP-1994) to the EMBL/GenBank/DDBJ databases.
                                                                                                     155 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CONCENTRATION OF THESE 2 GROWTH FACTORS. SUBUNIT: MONOMER.
PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match **.... Best Local Similarity 50.3%; **.... 75; Conservative
                                                                                                   STANDARD;
                                                                                                                                                                                                                                                                                                                         Bovidae; Caprinae; Ovis.
                                                                                                                                                                                                                                                                                                                                                                                                                           [2]
SEQUENCE OF 9-155.
                                                                                                                                                                                                                                          FGF2 OR FGF-2
                                                                                                   FGF2 SHEEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 factor.
                    146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   98
                                                                            RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                         සි
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
```

ò

ô

```
MEDLINE; 86275260.
Gautschi P., Frater-Schroeder M., Boehlen P.;
"Partial molecular characterization of endothelial cell mitogens from human brain: acidic and basic fibroblast growth factors.";
FEBS Lett. 204:203-207(1986).
                                                                                                                                                                                                                                                                   01-NOV-1998 (Rel. 09, Last sequence update)
01-NOV-1997 (Rel. 35, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.; "Human basic fibroblast growth factor: nuclectide sequence, genomic organization, and expression in mammalian cells."; cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Caput D.; "High molecular mass forms of basic fibroblast growth factor are
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'A form of human basic fibroblast growth factor with an extended
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.; "Human brain-derived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitogenic activities."; Blochem. Blophys. Res. Commun. 135:541-548(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sommer A., Brewer M.T., Thompson R.C., Moscatelli D., Presta M.,
Rifkin D.B.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Kurokawa T., Sasada R., Iwane M., Igarashi K.;
"Cloning and expression of cDNA encoding human basic fibroblast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Abraham J.A., Whang J.L., Tumolo A., Mergia A., Friedman J.,
Gospodarowicz D., Fiddes J.C.;
"Human basic fibroblast growth factor: nucleotide sequence and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Prats H., Kaghad M., Prats A.C., Klagsbrun M., Lelias J.M.,
Liauzun P., Chalon P., Tauber J.P., Amalric F., Smith J.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              initiated by alternative CUG codons.";
Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Biochem. Biophys. Res. Commun. 144:543-550(1987).
                                                                                                                                                                       155 AA
146 LKKNGSCKRGPRTHYGQKAILFLPLPVSS 174
                                                                                                                                                                                                                                                                                                                                                                              GROWTH FACTOR) (BFGF) (PROSTATROPIN)
                                                                                                                                                                       PRT;
                                                                                                                                                                                                                                          09, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EBS Lett. 213:189-194(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBO J. 5:2523-2528(1986).
                                                                                                                                                                       STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                organization.
                                                                                                                                                                                                                                01-NOV-1988 (Rel. 01-NOV-1988 (Rel. 01-NOV-1997 (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A. MEDLINE; 87217066.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A. MEDLINE; 87213238.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A. MEDLINE; 87162468.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE; 89184522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE OF 10-35.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE OF 10-39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         86186784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         87053817
```

factor

```
RGVVSIKGVCANRYLAMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRK;;T--SWYVA 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9 LPALPEDGGSGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEE 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HEPARIN-BINDING GROWTH FACTOR 2. CELL ATTACHMENT SITE (POTENTIAL). CELL ATTACHMENT SITE (POTENTIAL). HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                       PRINTS; PR00262; ILJHBGF.
PRINTS: PR00247; HBGFFGF; 1.
PR0SITS; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17254 MW; BE6CE13373007129 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        40.9%; Score 517; DB 1; 50.3%; Pred. No. 2.58e-99;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       30; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LKRTGQYKLGSKTGPGQKAILFLPMSAKS 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ||: | | |::| ||||||||:: |
LKKNGSCKRGPRTHYGQKAILFLPLPVSS 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                   9
48
48
31
34
34
43
38
46
60
60
60
60
60
60
80
80
88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           101
107
110
117
                                                                                                                                  03-APR-96.
03-APR-96.
16-JUN-97.
                                                                                                                                                                             31-JAN-94.
30-APR-94.
08-NOV-96.
08-NOV-96.
               A26642.
B24243.
B24301.
                                                           B32878.
S00297.
                                                                                                                                                                                                                                          134920, -. PF00167; FGF;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             148
155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity
Matches 75; Conserv
                                                           B32878; 1
                             B24243;
B24301;
                                                                                                                                                                                                                                                                                                                                    3D-structure.
PROPEP
                                                                                                                                    1BFB;
1BFC;
                                                                                                                                                                                  1BFG;
2BFH;
                                                                                                                                                                                                              1BLA;
                                                                                                                       1FGA;
                                                                                                                                                                    1BFF;
                                                                                                                                                                                                                                                                                                                                                                                                           BINDING
BINDING
STRAND
TURN
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TURN
HELIX
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HELIX
STRAND
TURN
STRAND
TURN
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAND
                                                                                                                                                                                                                                                                                                                                                               CHAIN
SITE
SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HELIX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  URN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        146
 PIR;
PIR;
PIR;
PIR;
PDB;
PDB;
PDB;
PDB;
PDB;
PDB;
PDB;
                                                                                                                                                                                                              PDB;
   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its most by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@lsb-sib.ch).
            Story M.T., Esch F., Shimasaki S., Sasse J., Jacobs S.C., Lawson R.K.; "Anino-terminal sequence of a large form of basic fibroblast growth factor isolated from human benjan prostatic hyperplastic tissue."; Biochem. Biophys. Res. Commun. 142:702-709(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Biochemistry 35:13552-13561(1996).

-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE IISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                        MEDLINE: 94004464.

Eriksson A.E., Cousens L.S., Matthews B.W.;
Refinement of the structure of human basic fibroblast growth factor at 1.6 A resolution and analysis of presumed heparin binding sites by selenate substitution.";
Protein Sci. 2:1274-1284(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SÜBUNIT: MONOMER.
MISCELLANEOUS: THIS PROTEIN BINDS HEPAKIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                             MEDLINE; 91195368.

Zhang J., Cousens L.S., Barr P.J., Sprang S.R.;

"Three-dimensional structure of human basic fibroblast growth factor,

a structural homolog of interleukin 1 beta.";

Proc. Natl. Acad. Sci. U.S.A. 88:3446-3451(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE; 97040521.
MAY F.J., Seddon A.P., Boehlen P., Powers R.;
"High-resolution solution structure of basic fibroblast growth factor determined by multidimensional heteronuclear magnetic resonance
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE; 91095983.
Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T., Hsu B.T., Rees D.C.;
"Three-dimensional structures of acidic and basic fibroblast growth
                                                                                                   MEDLINE; 91195367.
Eriksson A.E., Cousens L.S., Weaver L.H., Matthews B.W.;
"Three-dimensional structure of human basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE; 92121151.
Ago H., Kitagawa Y., Fujishima A., Matsuura Y., Katsube Y.;
"Crystal structure of basic fibroblast growth factor at 1.6-A
                                                                                                                                                                Proc. Natl. Acad. Sci. U.S.A. 88:3441-3445(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS).
                                                                                                                                                                                             X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS)
                                                                                      X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS)
                                                                                                                                                                                                                                                                                                                                                                                                                          CRYSTALLOGRAPHY (1.6 ANGSTROMS)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    M27968; AAA52448.1; -. JO4513; AAA52533.1; ALT_INIT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; M17599; AAA52534.1; ALT_INIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       resolution.";
J. Biochem. 110:360-363(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         X04431; CAA28027.1;
X04432; CAA28028.1;
X04433; CAA28029.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Science 251:90-93(1991).
MEDLINE; 87156686.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRUCTURE BY NMR
```

factors.

X-RAY

Gaps

..

42; Indels

EMBL; EMBL;

EMBL; EMBL; EMBL;

Length 155;

RESULT

```
Query Match
Best Local Similarity 52.5%;
Matches 74; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
                                                                       10 1
26
115 1
154. AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A. MEDLINE; 90201563.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FGF2 OR FGF-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LT 12
FGF2_MOUSE
P15655;
                                                                                                             BINDING
                                                                           CHAIN
BINDING
                                                         PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SFFFF
                                                                                                                                                                                                                                                   d
                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     El-Hussein A.E.D., Paterson J.A., Myal Y., Shiu R.P.C.;
"PCR detection of the rat brain basic fibroblast growth factor (bFGF)
mRNA containing a unique 3' untranslated region.";
Biochim. Biophys. Acta 1131.314-316(1992).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIGGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                     MEDLINE; 89061721.
Shimasaki S., Emoto N., Koba A., Mercado M., Shibata F.,
Cooksey K., Baird A., Ling N.;
Clomplementary DNA cloning and sequencing of rat ovarian basic
fibroblast growth factor and tissue distribution study of its mRNA.";
Biochem. Biophys. Res. Commun. 157:256-263(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -i- TISSUE SPECIFICITY: FOUND IN ALL THE TISSUES EXAMINED.
                                                                                                                                                                                                       Rattus norvegicus (Rat).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -! - SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                             01-JAN-1990 (Rel. 13, Last sequence update)
15-JUD-1998 (Rel. 35, Last annotation update)
1FPRAIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTATROPIN).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Kurokawa T., Seno M., Igarashi K.;
"Nucleotide sequence of rat basic fibroblast growth factor cDNA.";
Nucleic Acids Res. 16:5201-5201(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pasumarthi K.B.S., Jin Y., Cattini P.A.;
Cloning of the rat fibroblast growth factor-2 promoter region and
its response to mitogenic stimuli in glioma C6 cells.";
J. Neurochem. 68:898-908(1997).
                                                     154 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE OF 1-28 FROM N.A. STRAIN-SPRAGUE-DAWLEY; TISSUE-TESTIS; MEDLINE; 97200905.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE OF 35-154 FROM N.A. STRAIN-SPRAGUE-DAWLEY; TISSUE-BRAIN;
                                                                                                                                                                                                                                                                                                       STRAIN-SPRAGUE-DAWLEY; TISSUE-OVARY;
                                                                                         01-JAN-1990 (Rel. 13, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; M22427; AAA41210.1; -. EMBL; X07285; CAA30265.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          U78079; AAC53225.1; -. X61697; CAA43863.1; -.
                                                     STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRINTS; PR00262; IL1HBGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SUBUNIT: MONOMER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PIR; S00876; S00876.
PIR; A31674; A31674.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE; 92329546.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HSSP; P09038; 1BFF.
PFAM; PF00167; FGF;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE; 88262516.
                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                         OR FGF-
                                                   FGF2_RAT P13109:
```

EMBL;

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@lsb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        94 TETGQYLAMDIDGLLYGSQIPNEECLFLEELEENHYNTYISKKHAEKNWFVGLKKNGSCK 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -!- SUBUNIT: MONOMER.
-!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     76 VCANRYLAMKEDGRLLASKCVTEECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYK 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          16 GGGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKG 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         34 ANGTLLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKS 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-APR-1990 (Rel. 14, Created)
01-APR-1990 (Rel. 14, Last sequence update)
01-FBR-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ?
                                                                                                                                                                      HEPARIN-BINDING GROWTH FACTOR HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HEPARIN-BINDING GROWTH FACTOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 513; DB 1; Length 154;
Pred. No. 2.71e-98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PIR: C3360; C37360.
PIR: C3360; C37360.
PIR: C3360; C37360.
MGD: MGI:95516; FGF.
PFAM; PF00167; FGF.
PRINTS; PR00262; ILIHBGF.
PRINTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGFFGF.
PS0
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   39; Indels
                                                                                                                                                                                                                                                                                          PARIN (POTENTIAL).
1A0F14FF423D8403 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  154 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GROWTH FACTOR) (BFGF) (PROSTATROPIN).
                                                                                                                                                                                                                                                                                    HEPARIN
                                                                                                                                                                 154 HE
30 HE
118 HE
17139 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                134 LGSKTGPGQKAILFLPMSAKS 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |::| ||||||||:: |
154 RGPRTHYGQKAILFLPLPVSS 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; M30644; AAA37621.1; -.
```

FT

요 ö 셤

```
Mismatches
     28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-OCT-1989 (Rel. 12, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; M18067; AAA49726.1; -. PIR; A29618. A29618. PIR; A40117. A40117. HSSP; P09038; 1BFF. PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 95-155 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 39.0%;
Best Local Similarity 49.0%;
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      17241
        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                       STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  155
119
111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GROWTH FACTOR) (BFGF).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Xenopodinae; Xenopus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             111 1
155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE; 88052890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE; 89058621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FGF2 OR FGF-2
     77;
                                                                                                                                                                                                                                                                                                                                                                                                              LT 14
FGF2_XENLA
P12226;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PROPEP
                                                                                                             19
                                                                                                                                                                                                                                                                          123
        Matches
                                                          셤
                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                       HIDDER THE THE TERMINE THE TER
                                                                                                             ò
                                                                                                                                                                                                                     δy
                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation—the Buropan Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                  ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE; 94296558.

Kusewitt D.F., Sabourin C.L.K., Sherburn T.E., Ley R.D.;

Characterization of CDNA encoding basic fibroblast growth factor of the marsupial Monodelphis Gomestica.";

DNA Cell Biol. 13:549-554(1994).

-!- FUNCTION: THE PARENT BITOGENS FOR A VARIETY OF CELL TYPES IN VITNO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                 41 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SUBUNIT: MONOMER.
MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                            83 AMKEDGRLLASKCVTEECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGSKTGP 140
                                                                                                                                                                                                                                                                                                                                                      01.FEB-1996 (Rel. 33, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
01-NOV-1997 (Rel. 35, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
                                                                                                                                                                                                                  23 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYL 82
                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Monodelphis domestica (Short-tailed grey opossum).
Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi,
Mammalia, Metatheria, Didelphimorphia, Didelphidae, Monodelphis.
                                                                                                                                                               5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BY SIMILARITY.
HEPARIN-BINDING GROWTH FACTOR
HEPARIN (POTENTIAL).
TE655FCC49BF1209 CRC64;
                                                                                                       Score 508; DB 1; Length 154; Pred. No. 5.13e-97; 23; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 505; DB 1; Length 156; Pred. No. 2.99e-96;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRINTS; PRO0262; ILLHBGF.
PRINTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                              HEPARIN (POTENTIAL).
689F677416274388 CRC64;
     HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    156 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GROWTH FACTOR) (BFGF) (PROSTATROPIN).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; Z15154; CAA78854.1; ALT_INIT
  30 HE
118 HE
17153 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      17303 MW;
                                                                                                          / Match 40.2%;
Local Similarity 54.5%;
nes 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              39.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       49.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                       141 GOKAILFLPMSAKS 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       161 GOKAILFLPLPVSS 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              156
32
120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HSSP; P09038; 1BFF.
PFAM; PF00167; FGF; 1.
  26
115 1
154 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   156 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FGF2_MONDO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BINDING
BINDING
BINDING
SEQUENCE
                                                                                                             Query Match
```

~RESULT

엄

õ

BINDING

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its most by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@18b-sib.ch).
                                                                                                                                                                                                            LQLQAEERG'VVSIKGVCANRYLAMKEDGRLLALKYVTEECFFFERLESNNYNTYRSRKYS 122
                                                                                                                                                                                                                                                 01-JAN-1990 (Rel. 13, Last sequence update)
01-NOV-1997 (Rel. 35, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            embryo.";
Cell 51:869-877(1987).
-!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                     GSITTLPALSGDGG-GGGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGIREKSDPNIK 62
                                                                                                                                       GVLVGMVVPSPAGARANGTLLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQ 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Kimelman D., Abraham J., Haaparanta T., Palisi T., Kirschner M.; "The presence of fibroblast growth factor in the frog egg: its role as a natural mesoderm inducer."; Science 242:1053-1056(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Xenopus laevis (African clawed frog).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Kimelman D., Kirschner M.;
"Synergistic induction of mesoderm by FGF and TGF-beta and the
identification of an mRNA coding for FGF in the early Xenopus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 તં
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HEPARIN-BINDING GROWTH FACTOR HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
MISSING (IN REF. 2).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 493; DB 1; Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFPGF.
PR0SITE; PS00247; HBGFFGF. 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pred. No. 3.42e-93;
29; Mismatches 45; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 036735C8063142FD CRC64;
48;
                                                                                                                                                                                                                                                                                                                                                                                                139 EKNWFVGLKKNGSCKRGPRTHYGQKAILFLPLPVSS 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    155 AA
                                                                                                                                                                                                                                                                                                                                                       -- NWYVALKRIGQYKLGSKIGPGQKAILFLPMSAKS
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE; 93443209.

Winkles J.A., Friesel R., Alberts G.F., Janat M.F., Liau G.;

Winkles J.A., Friesel R., Alberts G.F., Janat M.F., Liau G.;

Winkles J.A., Friesel R., Alberts G.F., Janat M.F., Liau G.;

Winkles J.A., Friesel R., Alberts G.F., Janat M.F., Liau G.;

Winctalized rabbit smooth muscle cell line.";

Am. J. Pathol. 143:518-527(1993).

-! FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS.

IN VIVO AND ARE POTENT MITOGENE FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.

-!- SUBDINT: MONOMER.

-!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61 GVVSIKGVCANRYLAMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVAL 118
                                                                                                                                    69 RGVVSIKGITANRYLAMKEDGRLTSLRCITDECFFFERLEANNYNTYRSRKYS--SWYVA 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          26 VPSPAGARANGTLLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAES 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 PALPEDGGSGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEER 60
9 LPTESEDGGNTPFSPGSFKDPKRLYCKNGGFFLRINSDGRVDGSRDKSDSHIKLQLQAVE 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                               01-FEB-1996 (Rel. 33, Last sequence update)
1-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 (HBGF-2) (BASIC FIBROBLAST GROWTH
FACTOR) (BFGF) (PROSTATROPIN) (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Oryctolagus cuniculus (Rabbit).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 473; DB 1; Length 137;
Pred. No. 4.13e-88;
27; Mismatches 40; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   P09038; lbrr.

PF00167; FGF; 1.

(TE; PS00247; HBGF_FGF; 1.

th factor; Mitogen: Vascularization; Heparin-binding.

TNG 18 22 HEPARIN (POTENTIAL).

HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     137 AA; 15418 MW; 0D9EE457B88E8C51 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A. STRAIN-NEW ZEALAND WHITE; TISSUE-SMOOTH MUSCLE;
                                                                                                                                                                                                                                                                                                                                                                      137 AA.
                                                                                                                                                                                                                                          127 LKRTGQYKNGSSTGPGQKAILFLPMSAKS 155
                                                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                 01-FEB-1996 (Rel. 33, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    119 KRTGQYKLGSKTGPGQKAI 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 37.4%;
Best Local Similarity 50.4%;
Matches 70; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; L12034; AAA31248.1;
HSSP; P09038; 1BFF.
                                                                                                                                                                                                                                                                                                                                                                      STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                            01-FEB-1996
01-FEB-1996
                                                                                                                                                                                                                                                                                                                                         LT 15
FGF2_RABIT
P48799;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PFAM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HSSb;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STTTWN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                   ò
                                                                                                      d
                                                                                                                                                            ò
                                                                                                                                                                                                          유
                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                      42444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
```

```
Qy 147 KKNGSCKRGPRTHYGQKAI 165
```

Search completed: Tue Aug 29 15:41:43 2000 Job time: 26 secs.

*****	(TM)
****	·
***	''
*******	
*****	
*******	
*******	
*******	     >>
· 李· · · · · · · · · · · · · · · · · ·	

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

protein - protein database search, using Smith-Waterman algorithm Tue Aug 29 15:42:01 2000; MasPar time 16.51 Seconds 734.932 Million cell updates/sec MPsrch\_pp ou:

laxular output not generated.

>US-09-121-012B-3 (I=175) from US09121017B.pep 1265 1 MSRGAGRVQGTLQALVFLGV......PRTHYGQRAILFLPLPVSSD 175 Description: Perfect Score: Sequence:

Scoring table:

PAM 150 Gap 11

Searched:

225878 seqs, 69334122 residues

Post-processing:

Minimum Match 0% Listing first 45 summaries

Database:

spirembil2 ... sp.bacteria 3:sp\_fungi 4:sp\_human 1:sp\_archea 2:sp\_bacteria 3:sp\_fungi 4:sp\_human 5:sp\_invertebrate 6:sp\_mammal 7:sp\_mhc 8:sp\_organelle 9:sp\_phage 10:sp\_plant 11:sp\_rodent 12:sp\_unclassified 13:sp\_vertebrate 14:sp\_virus

Mean 43.118; Variance 70.257; scale 0.614 Statistics:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

Result	Ċ	Query		1	1			
SO.	score	Match	Match Length DB	8 :	ar di	Description	Pred. No.	
1	517	40.9	196	4	P78443	21 KD BASIC FIBROBLAST	2.77e-95	
7	511	40.4	130	9	077767	BASIC FIBROBLAST GROWT	8.18e-94	
m	382	30.2	101	13	P79706	BASIC FGF (FRAGMENT).	1.23e-62	
4	346	27.4	146	13	007659	FIBROBLAST GROWTH FACT	3.96e-54	
'n	313	24.7	115	11	060487	BASIC FIBROBLAST GROWT	1.95e-46	
9	306	24.2	212	13	042407	FIBROBLAST GROWTH FACT	8.09e-45	
7	302	23.9	194	φ	P79150	KERATINOCYTE GROWTH FA	6.75e-44	
œ	274	21.7	252	11	960680	FHF-4B.	1.67e-37	
σ	267	21.1	9	4	016588	ACIDIC FIBROBLAST GROW	6.38e-36	
10	266	21.0	59	4	016089	ACIDIC FIBROBLAST GROW	1.07e-35	
11	264	20.9		11	054837	FIBROBLAST GROWTH FACT	3.02e-35	
12	260	20.6		13	Q9YH31	PUTATIVE FIBROBLAST GR	2.39e-34	
13	257	20.3		13	Q9W6A1	FIBROBLAST GROWTH FACT	1.13e-33	
14	251	19.8		4	099517	FIBROBLAST GROWTH FACT	2.46e-32	
12	250	19.8		13	09YGD8	FIBROBLAST GROWTH FACT	4.11e-32	
16	248	19.6		4	095830	FIBROBLAST GROWTH FACT	1.15e-31	
17	248	19.6		13	Q9W6A2	FIBROBLAST GROWTH FACT	1.15e-31	
18	236	18.7		13	P79925	FIBROBLAST GROWTH FACT	5.17e-29	
19	226	17.9	425	'n	076831	LET-756 PROTEIN.	8.02e-27	
20	225	17.8	74	ø	077561	KERATINOCYTE GROWTH FA	1.32e-26	

3.61e-26		7.20e-25	·5.24e-24	3.79e-23	1.01e-22	8.28e-21	5.09e-21	6.42e-19	6.42e-19	1.68e-18	1.13e-17	2.04e-12	8.86e-05	4.30e-04	1.38e-03	1.95e-02	2.81e-02	2.45e-01	2.45e-01	3.48e-01	4.94e-01	4.94e-01	9.84e-01	1.38e+00
FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	FGF HOMOLOG.	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	R33683_2.	FGF-ACMNPV ORF32.	FIBROBLAST GROWTH FACT	BASIC FIBROBLAST GROWT	BASIC FIBROBLAST GROWT	FGF-19.	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	FIBROBLAST GROWTH FACT	CONSERVED PROTEIN.	HYPOTHETICAL 27.5 KD P	211AA LONG HYPOTHETICA	CONSERVED HYPOTHETICAL	PUTATIVE.	PUTATIVE STRESS PROTEI	DEVELOPMENTAL REGULATO	FH1/FH2 PROTEIN HOMOLO	REPE.	2K256.1B PROTEIN.
969060	057341	P91672	014915	042278	060371	092401	Q9YMH2	000527	016443	095750	097573	035340	062682	P79685	027154	073554	Q9YEE7	025299	092LQ6	Q92U34	092000	P78621	023865	Q9XTC3
13	13	ഹ	4	13	4	14	14	4	4	4	9	11	9	13	Н	14	Н	~	~	10	ო	m	'n	Ŋ
204	210	770	244	210	129	182	282	114	114	216	73	78	85	98	822	243	211	232	232	611	086	1790	1139	705
17.6	17.5	17.2	16.3	16.5	16.4	15.7	15.7	14.9	14.9	14.8	14.5	12.4	6.5	8	8.6	8.1	8.0	7.5	7.5	7.4	7.4	7.4	7.2	7.1
223	222	217	213	209	207	198	199	189	189	187	183	157	116	112	109	102	101	95	9	94	93	93	91	90
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

### ALIGNMENTS

50 LPALPEDGGSGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEE 109 Gaps 30; Mismatches 42; Indels Conservative 75;

> qq δ

ij

Gaps

; 2

Length 101; Indels

g

셤 ö

ò

RESULT
ID 07
AC 07
DT 01
DT 01
DT 01
DT 01
CON 01
DT 01
DE BF
CON 01

STTRACTA

ò

ò

```
MEDLINE; 90382254.
MITRANI E., GRUBNBAUM Y., SHOHAT H., ZIV T.;
"Fibroblast growth factor during mesoderm induction in the early chick
embryo.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Archosauría; Aves;
Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.
                                                                                                                                                                                                                                                                                                                                                                                                           46 PKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYLAMDTD 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             45 ERVSAMVKLQLQAEERGVVSIKGVSANRFLAMKEDGRLLALKCATEECFFFERLESNNYN 104
                                                                                                                                                                                                                                                                                                                                   1 PRRLYCKNGGFFLRINSDGKVDGAREKSDSYIKLQLQAEERGVVSIKGVCANRYLAMKDD 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LT 5
Q60487
Q604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 346; DB 13; Length 146; Pred. No. 3.96e-54;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  105 TYRSRKYSD--WYVALKRTGQYKPGPKTGPGQKAILFLPMSAKS 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61 GRLMALKWITDECFFFERLESNNYNTYRSRKYSD--WYVALKR 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                            28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SECUENCE FROM N.A.
MEDLINE; 93246053.
BORJA A.Z., ZELLER R., MEIJERS C.;
"Expression of alternatively spliced bFGF first antisense mRNAs during chicken embryogenesis.";
                                                                                                                                                                                 Score 382; DB 13;
Pred. No. 1.23e-62;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             146 AA; 16182 MW; 44C5274B CRC32;
                                                                                                                101 AA; 11907 MW; 1CD93BB0 CRC32;
                                                                                                                                                                                                                                                                18; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ā
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Development 109:387-393(1990).
EMBL; M95706; AAA48616.1; -
EMBL; X56804; CAA40139.1; -.
HSSP; P09038; 2BFH.
PROSITE; PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (TrEMBLrel. 01, C
(TrEMBLrel. 01, I
(TrEMBLrel. 12, I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Dev. Biol. 157:110-118(1993)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        27.4%;
48.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            [2]
SEQUENCE OF 52-85 FROM N.A.
                                                                                                                                                                                    30.2%;
53.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                            55; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FIBROBLAST GROWTH FACTOR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PFAM; PF00167; FGF; 1. PRINTS; PR00262; IL1HBGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
                                                                           101
PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Local Similarity
Matches 50; Conser
                                                                                                                                                                                                                          Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-NOV-1996
01-NOV-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE
                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 4

1D 007659

DT 001-NOV-19

DT 01-NOV-19

DT 01-NOV-19

DE FIBROBLAR

GN BFGF.

GN BFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                            Query Match
                                         NON_TER
NON_TER
                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
1D 06
AC 06
DT 01
DT 01
DE BP
OS CE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
           FT
                                                                                                                                                                                                                                                                                                                                       d
                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                  110 RGVVSIKGVCANRYLAMKEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYT--SWYVA 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61 KEDGRLLASKCVTDECFFFERLESNNYNTYRSRKYS--SWYVALKRTGQYKLGPRTGPGQ 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 FKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYLAM 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TISSUE-EMBRYO;
SUZUKI A.S., TABATA T., SAKAGUCHI K., TAKABATAKE T., TAKESHIMA K.,
KANEDA T.; TABATA T., SAKAGUCHI K., TAKABATAKE T., TAKESHIMA K.,
Serlal a.; Tabata T., Sakaguchi a mesodermalizing ectoderms of
early Cynops gastrula.";
submitted (NOV-1996) to the EMBL/GenBank/DDBJ databases.
EMBL; D89443; D8743;
HSSP; P09038; 2BFH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Canis familiaris (Dog).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Carnivora; Fissipedia; Canidae; Canis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Cynops pyrrhogaster (Japanese common newt).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Amphibia;
Batrachia; Caudata; Salamandroidea; Salamandridae; Cynops.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 511; DB 6; Length 130;
Pred. No. 8.18e-94;
21; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TISSUE-ADRENAL GLAND;
TROCHTA O.A., JACOBS R.M., LAMARRE J.;
TROCHTA O.B., JACOBS R.M., LAMARRE J.;
The contine Hemangiosarcoma.";
Submitted (PRR-1998) to the EMBL/GenBank/DDBJ databases.
EMBL; AF060562; AAC35912.1;
THSSP; P09038; IBRF.
PROSITE: PS00247; HBGF_FF; 1.
PROSITE: PS00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-NOV-1998 (TrEMBLrel. 08, Created)
01-NOV-1998 (TrEMBLrel. 08, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      130 130
130 AA; 14902 MW; DB6A90A4 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                           130 AA
                                                                                                                                                                                    168 LKRTGQYKLGSKTGPGQKAILFLPMSAKS 196
                                                                                                                                                                                                                              Created)
                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PROSITE; PS00247; HBGF_FGF; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-MAY-1997 (TIEMBLRELL 03, 01-MAY-1997 (TIEMBLRELL 03, 01-NOV-1999 (TIEMBLRELL 12,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 40.4%;
Best Local Similarity 55.3%;
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 119 KAILFLPMSAKS 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ||||||||: |
163 KAILFLPLPVSS 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASIC FGF (FRAGMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                  LT 2
077767
077767;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2T 3
P79706
P79706;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NON_TER
```

exons

coding

.; ;

Indels

STREET

g

ò

```
139 YPSELFTPECKFKESVFENYYVIXSSMLYRQQESGRAWFLGLNKEGQVMKG:RVKKTKPA 198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    59 MEGGDIRVRRLFCRTQ-WYLRIDKRGKVKGTQEMKNSYNIMEIRTVAVGIVAIKGVESEY 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LYCRQG-YYLQMHPDGALDGTKDDSTNSTLFNLIPVGLRVVAIQGVKTGLYIAMNGEGYL 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          118 YLAMNKEGKLYAKKECNEDCNFKELILENHYNTYASAKWTHSGGEMFVALNQKGVPVRGK 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE; 98267141.
YAMAMOTO S., MIKAMI I., OHBAYASHI N., OHTA M., ITOH N.;
"Structure and expression of a novel isoform of mouse FGF homologous factor (FHF)-4.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 274; DB 11; Length 252;
Pred. No. 1.67e-37;
26; Mismatches 49; Indels 5; Gaps
                                                Canis familiaris (Dog).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Carnivora; Fissipedia; Canidae; Canis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           23.9%; Score 302; DB 6; Length 194; 35.8%; Pred. No. 6.75e-44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Rattus norvegicus (Rat), and Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae;
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
KERATINOCYTE GROWTH FACTOR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 33; Mismatches 52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Blochim. Blophys. Acta 1338:38-41(1998).

EMBL; AB008908; BAA31544.1; -.

EMBL; AB008907; BAA31543.1; -.

HSSP; A03968; 1BAR.

PFAM; PF00167; FGF; 1.

SEQUENCE 252 AA; 28364 MW; 1DFD5B4B CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      252 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-NOV-1998 (TrEMBLrel. 08, 01-NOV-1998 (TrEMBLrel. 08, 01-NOV-1999 (TrEMBLrel. 12,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
21.7%;
Best Local Similarity 37.5%;
Matches 48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        157 RTHYGQKAILFLPLPVS 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             178 KTKKEQKTAHFLPMAIT 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Local Similarity 35.8%;
Matches 49; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                              MEDLINE; 96226403
                                                                                                                                [1]
SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LT 8
089096
089096;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT ON THE ON
  음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                       ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-JAN-1998 (TrEMBLrel. 05, Created)
01-JAN-1998 (TrEMBLrel. 06, Last sequence update)
01-JON-1999 (TrEMBLrel. 12, Last annotation update)
FIBROBLAST GROWTH FACTOR 10.
Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Archosauria; Aves;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
MEDLINE, 9730690.
OHUCHI H., NAKAGAWA T., YAMAMOTO A., ARAGA A., OHTA T., ISHIMARU Y.,
OHUCHI H., NUKARA T., NOHNO T., YAMASAKI M., ITOH N., NOJI S.;
"The mesenchymal factor, FGF10, initiates and maintains the outgrowth
of the chick limb bud through interaction with FGF8, an apical
ectodermal factor.";
Development 124:2235-2244(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   122 IGVVAVKSIKSNYYLAMNKKGKVYGSKEFNSDCKLKERIEENGYNTYASLNWKHNGROMF 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      64 PSSAGRHVRSYNHLQGDVRKRKL-Y-SYNKYFLKIEKNGKVSGTKKENCPFSILEITSVE 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 GFFLRIHPDGRVDGVREKTDPHIKHNFKPKA-EELCYQGSLSNRYLAMKEDGRLLASKCV 59
                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                       <u>ښ</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 306; DB 13; Length 212;
Pred. No. 8.09e-45;
32; Mismatches 57; Indels
                                                                                                                                                                                                                                                                                                                                  Length 115;
                                                                                                                                                                                                                                                                                                                               Score 313; DB 11; Length 11
Pred. No. 1.95e-46;
22; Mismatches 31; Indels
                                                             TISSUB-PROGTATE;
RICCIARDELLI C.;
Submitted (JAN-1996) to the EMBL/GenBank/DDBJ databases.
EMBL: L1559, AAA85394.1;
HSSP; P09038; 2BFH.
Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60 IDECFFFFRLESNNYNTYRSRKYS--SWYVALKRIGQYKLG 98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (TrEMBLrel. 03, Created)
(TrEMBLrel. 03, Last sequence update)
                                                                                                                                                                                                                                                       NON_TER 1 1 SEQUENCE 115 AA; 13495 MW; 4B12914A CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PFAM; PF00167; FGF; 1.
PRINTS; PR00263; HBGFFGF.
SEQUENCE 212 AA; 23631 MW; CBAB1883 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           194 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                182 VALNGRGATKRGQKTRRKNTSAHFLPMVVMS 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                 PROSITE; PS00247; HBGF_FGF; 1.
PFAM; PF00167; FGF; 1.
NON_TER 1 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             24.2%;
ilarity 37.7%;
Conservative
                                                                                                                                                                                                                                                                                                                               Query Match 24.7%;
Best Local Similarity 44.6%;
Matches 45; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; D86333; BAA24945.1;
HSSP; P03968; 1BAR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local Similarity
Matches 57; Conserv
                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LT 7
P79150
P79150;
01-MAY-1997 (
01-MAY-1997 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            042407;
01-JAN-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            T 6
```

RACE SOLVE S

ä

RESULT ID P7 AC P7 DT 01 DT 01

a ö g

ö

ä

Gaps

Indels

Length 59;

ò B à 

```
Score 266; DB 4; Le
Pred. No. 1.07e-35;
1; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                               FIBROBLAST GROWTH FACTOR-1 (FRAGMENT)
Mus musculus (Mouse).
                                                                                                                                                                                                                                                                                                                                                  Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20.9%;
ilarity 97.2%;
Conservative
                                                                                                                                                                                                                                                                                                                                            01-JUN-1998 (TrEMBLrel. 06, 01-JUN-1998 (TrEMBLrel. 06, 01-NOV-1999 (TrEMBLrel. 12,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20.6%;
Local Similarity 34.6%;
les 44; Conservative
Query Match 21.0%;
Best Local Similarity 92.3%;
Matches 36; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                                          PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
nes 35; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  188 TVTHFLP 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                            LT 11
054837
054837;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            T 12
09YH31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                            RESULT OF THE SULT OF THE SULT
                                                                                                                   셤
                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             염
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
109 YGSQTPNEECLFLERLEENHYNTYISK -- KHAE -- KNWFVGLKKNGSCKRGPRTHYGQKA 164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
MEDLINE; 94069734.
ZHAO X.M., YEGH T.K., HIEBERT M., FRIST W.H., MILLER G.G.;
ZHAO X.M., TEGH T.K., HIEBERT M., FRIST W.H., MILLER G.G.;
The expression of acidic fibroblast growth factor (heparin-binding growth factor-1) and cytokine genes in human cardiac allografts and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ZHAO X.M., YEOH T.K., HIEBERT M., FRIST W.H., MILLER G.G.; "The expression of acidic fibroblast growth factor (heparin-binding growth factor-1) and cytokine genes in human cardiac allografts and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE; S2202857.
MEDLINE; S2202857.
MEDLINE; S4H, GOLDEN J.A., MIGCHIELSEN A.A.J., GOETZL E.J.,
TURCK E.J.;
"An acidic fibroblast growth factor protein generated by alternate
splicing acts like an antagonist.";
J. Exp. Med. 175:1073-1080(1992).
EMBL; S67292; AAB29058.1;
EMBL; X65779; CAA46662.1;
PFRAM; PFROME; FGF; I.
PFRAM; PFROME; FGF; I.
NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 60;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                 01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
ACIDIC FIBROBLAST GROWTH FACTOR (FRACMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
ACIDIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 267; DB 4; Ler
Pred. No. 6.38e-36;
2; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHTD 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      167; FGF; 1.
59 59
59 AA; 6595 MW; 1C932BID CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6CCC7DFF CRC32;
                                                                                                                                                                                                                                 60 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 59 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Transplantation 56:1177-1182(1993).
EMBL, S67294; AAB29059.1; -
HSSP; P05230; 2AXM.
PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Transplantation 56:1177-1182(1993)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60 60
60 AA; 6697 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity 87.8%;
Matches 36; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRELIMINARY;
                                                                                                                                                                                                                                 PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE; 94069734.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                        199 AHFLPKPL 206
                                                                                                             165 ILFLPLPV 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cells."
                                                                                                                                                                                                                                                      016588;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   O1 010
                                                                                                                                                                                                 LT 9
Q16588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cells
```

셤

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           э,
Э
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         71 KRLRRLYCNVGIGFHLQVLPDGRIHGMHSES-RYSLLEISPVERGVVCMFGVQSGLFLAM 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      103 DIDGLLYGSQTPNEECLFLERLEENHYNTYISKKHABKNWFVGLKKNGSCKRGPRTHYGQ 162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      130 NSKGRLFGSKYFSDECKFKEMLLPNNYNAYESWRYPGM--YIALSKNGRAKKGNKVSPTM 187
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PUTATIVE FIBROBLAST GROWTH FACTOR-4.
Notophthalmus viridescens (Eastern newt) (Triturus viridescens).
Eukaryota; Metazoa; Chorada; Craniata; Vertebrata; Amphibla;
Batrachia; Caudata; Salamandroidea; Salamandridae; Notophthalmus
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ô
                                                                                                                                                                                                                                                                                                                                                                          Mammalia;
Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 70;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 260; DB 13; Length 19
Pred. No. 2.39e-34;
31; Mismatches 48; Indels
Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
STRAIN=C3H/HEN; TISSUE=LIVER;
ZHANG Y.-X., HACKSHAW K.V.;
Submitted (JUL-1997) to the EMBL/GenBank/DDBJ databases.
EMBL; AF012926; AAB94020.1; -..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WEI Y.;
Whative Newt Fibroblast Growth Factor-4.";
Submitted (OCT-1996) to the EMBL/GenBank/DDBJ databases.
EMBL; U7698; AAC98812.1;
HSSP; P09038; 1BFF.
PROSITE: PSPO0247; HBFF.
SEQUENCE 196 AA; 22033 MW; 455E08A3 CRC32;
                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        O9YH31; -
O1-MAY-1999 (TrEMBLrel. 10, Created)
01-MAY-1999 (TrEMBLrel. 10, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
                                                                                                                                                                                                                                                                        Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 264; DB 11; I
Pred. No. 3.02e-35;
1; Mismatches 0;
                                                                        18 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQH 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          41 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQH 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PFAM; PF00167; FGF; 1.

NON_TER 70 70

SEQUENCE 70 AA; 7677 MW; 15A1BE5E CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              35 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQH 70
                                                                                                                                                                                                70 A.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                196 AA
```

```
7 15
Q9YGD8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                            g
                                                                                                  ö
                                                                                                                                              g
                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               <u>ښ</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ä;
                                                                                                                                                                                                                                                                      Gailus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Archosauria; Aves;
Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     77 LF-SQQEYFLQMHPDGTIDGTKDENSDYTLFNLIPVGLRVVAIQGVKAGLYVAMNAEGYL 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            49 LYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYLAMDTDGLL 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     136 YSSDVFTPECKFKESVFENYYVIYSSTLYRQQESGRAWFLGLNKEGQIMKGNRVKKTKPS 195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MUNIOZ-SANJON I.; SIMANDL B.K., FALLON J.F., NATHANS J.;
"Expression of chicken fibroblast growth factor homologous factor (FFF)-1 and of differentially spliced isoforms of FHF-2 during development and involvement of FHF-2 in chicken limb development. 126:409-421(1999).

EMBL; AF108754; AAD21575-1; --
BROSTEE, PS00247; HBGE_EGG; 1.
SEQUENCE 243 AA: 27455 MW; A9E6EBCD CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 257; DB 13; Length 243;
Pred. No. 1.13e-33;
31; Mismatches 48; Indels 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COULIER F., PONTAROTTI P., ROUBIN R., HARTUNG H., GOLDFARB M.
BIRNBAUM D.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        19.8%; Score 251; DB 4; Length 127; 34.6%; Pred. No. 2.46e-32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            30; Mismatches 48; Indels
                                                                                                                                         01-NOV-1999 (TrEMBLrel. 12, Created)
01-NOV-1999 (TrEMBLrel. 12, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
FIBROBLAST GROWTH FACTOR 12 ISOFORM A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       127 AA; 14478 MW; 10E2842D CRC32;
                                                                                                243 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              127 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-MAY-1997 (TrEMBLrel. 03, Created)
10-MAY-1997 (TrEMBLrel. 03, Last seque
10-NOV-1999 (TrEMBLrel. 12, Last annot
FIBROBLAST GROWTH FACTOR 12 (FRAGMENT)
                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      J. MOJ. Evol. 0:0-0(0).
EMBL; 270276; CAA94240.1; -.
HSSP; P03968; IAFC.
PROSITE; PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 20.3%;
Best Local Similarity 34.4%;
Matches 44; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            44; Conservative
                                                                                                PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PEAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A. MEDLINE; 99065510.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   [1]
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        196 SHFVPKPI 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      165 ILFLPLPV 172
163 KAILFLP 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             UT 14
099517
099517;
                                                                      T 13
Q9W6A1
                                                                                                                       09W6A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FGF12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Loc
Matches
                                                                      RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
  ò
                                                                                                  RAY RAY OCC SON BANK RA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5488
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       윰
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
```

```
ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESCAN P.Y.; "Identification of a fibroblast growth factor 6 (FGF6) gene in a non-mammalian vertebrate: continuous expression of FGF6 accompanies muscle
                                               61 YSSDVFTPECKFKESVFENYYVVYSSTLYRQQESGRAWFLGLNKEGQIMKGNRVKKTKPS 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               49 LYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYLAMDTDGLL 108
                                                                                 81 KRVRRLYCNAGIGFHLQVLPDGRINGVHN-ENQYSLIEISTVERGVVSLYGVRSELFVAM 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          44 KKPKLLYCSNGGHF-LRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYLAM 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   140 NSRGRLYGTTVFHDECKFRESMLPNNYNAYESSVY--RGSYIALNKHGRLKRGKKATTAM 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Oncorhynchus mykiss (Rainbow trout) (Salmo gairdneri).
Sukaryota: Metazoa: Chordata: Craniata: Vertebrata: Actinopterygil;
Neopterygii: Teleostei: Euteleostei: Protacanthopterygii:
Salmoniformes: Salmonidae: Oncorhynchus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 250; DB 13; Length 20
Pred. No. 4.11e-32;
36; Mismatches 47; Indels
                                                                                                                                                                                                                                                                                                                                                                                                            Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    fiber hyperplasia.";
Biochim. Biophys. Acta 1443:305-314(1998).
EMBL, Y16850, CAA76422.1;
EMBL, P09038; IBFF.
PROSITE; PS00247; HBGF_FGF; 1.
SEQUENCE 206 AA; 23375 MW; 818267C3 CRC32;
                                                                                                                                                                                                                                                                                                                             206 AA
                                                                                                                                                                                                                                                                                                                                                                                                      01-MAY-1999 (TrEMBLrel. 10, Last sequence un
01-NOV-1999 (TrEMBLrel. 12, Last annotation
FIBROBLAST GROWTH FACTOR 6-RELATED PROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Search completed: Tue Aug 29 15:43:21 2000 Job time: 80 secs.
                                                                                                                                                                                                                                                                                                                                           OSYGD8;
01-MAY-1999 (TrEMBLrel. 10, Created)
01-MAY-1999 (TrEMBLrel. 12, Last and
01-NOV-1999 (TrEMBLrel. 12, Last and
                                                                                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Match 19.8%;
Local Similarity 31.5%;
Les 40; Conservative
                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A. MEDLINE; 99096461.
                                                                                                                                                                                                       165 ILFLPLP 171
                                                                                                                                                             121 SHFVPKP 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           198 TVTHFLP 204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                163 KAILFLP 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
```

**	(MI)	****
***	·	****
k k k	·' '	*****
k k k k		***
K K K K K		*****
***************************************		**************************************
		*******
t t t	    	******
	<u></u>	******
		*

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

protein - protein database search, using Smith-Waterman algorithm MPsrch\_pp

MasPar time 6.87 Seconds 624.017 Million cell updates/sec Tue Aug 29 15:48:28 2000;

ular output not generated.

>US-09-121-017B-5 (1-181) from US09121017B.pep 1300 Description: Perfect Score: Title:

1 MSRGAGRVQGTLQALVFLGV......PRTHYGQKAILFLPLPVSSD 181 Scoring table: Sequence:

.PAM 150 Gap 11

Searched:

188963 seqs, 23686106 residues

Post-processing:

summaries Minimum Match 0% Listing first 45

Database:

a-geneseq36 1:geneseqp

Variance 128.544; scale 0.245 Mean 31.461; Statistics:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

	No.	1 6	87	81	81	81	81	81	81	81	81	81	81	81	81	83	81	81	81	81	81	81	2
	Pred. N	6.60e-8	.60e-8	5.60e-	6.60e-	5.60e-	6.60e-	.60e-8	5.60e-	6.60e-	6.60e-1	5.60e-	5.60e-	.60e-	5.60e-	5.60e-	5.60e-	5.60e-	.60e-	5.60e-	.60e-	.60e-	-009
	Pr	:	١	_	_	_		9	9	9	9	ω.	9	_	9	_	_	_	_	9	φ.	9	œ
	ption	acidic fibroblas	acidic Fibroblas	acid fibroblast	recombinant aFGF	acidic fibroblas	Sequence of human prot	acidic fibroblas	aFGF encoded by	beta-endotheliál	beta-endothelial	endothelial cell	beta-endothelial	acidic fibroblas		Sequence encoded by co	last growth fact	last growth fact		endothelial cell	endothelial cell	bECGF encoded by	endothelial cell
	Description	Human	Human	Human	Human	Human	Sequen	Human	Human	Human	Human	Human	Human	Human	FGF-1.	Seguen	Fibroblast	Fibroblast	Fibrob	Human	Human	Human	Himan
S		:													•								
SUMMAKIES	Ω	R25914	R34497	P90068	R74647	W04806	P70995	R10527	R05789	W92283	W04805	W06816	W75414	P94037	R70812	P70482	R80776	W53022	W75711	W75415	W92291	R05785	WORRIR
	03	-	-	-	-	-	-		-		-	-	н	Н	-	-	-	-	-		-	<del>, ,</del>	_
	Query Match Length DB	140	140	140	140	140	140	141	151	154	154	154	154	155	155	155	155	155	155	155	155	165	168
ď	Query Match	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70 8
	Score	920	920	920	920	920	920	920	920	920	920	920	920	920	920	920	920	920	920	920	920	920	920
	Ratult No.	1	7	٣	4	S	9	7	œ	<b>о</b>	10	11	12	13	14	15	16	17	18	19	20	21	22

1.35e 80 1.35e	9.05e-73 4.75e-72
Human alpha-endothella Human alpha-endothella Fibroblast growth fact Human endothellal cell 9 N-terminal residue a RFG mutein #2. Recombinant human Alal Human (Gly93) arGF ana Fibroblast growth fact arGF mutein #3. 12 N-terminal residue Human acidic fibroblas Bovine acidic fibroblas Bovine eccombinant arG Brain-derived acidic fibroblas Bovine elibroblast grow Bovine acidic fibroblas Bovine acidic fibroblas Bovine acidic fibroblas Recombinant arG Brain-derived acidic fibroblas Revombinant human muta Recombinant human muta Recombinant human muta Recombinant human muta	Bovine (Ala47,Gly93) a. Chimeric acid/basic fi
W92282 W04807 W71383 W71383 R11327 R11327 W00561 R05935 R25419 R05935 R05935 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R05315 R0	W00560 W01747
44600000000000000000000000000000000000	141
00000000000000000000000000000000000000	64.7 64.2
00000000000000000000000000000000000000	841 834
400788888888884444	44 5

### ALIGNMENTS

This sequence represents acidic fibroblast growth factor (aFGF).

aFGF, or its fragments may be used in a synergistic comp.sn. with an antivizally active sulphated polysaccharide, and one or more exciplents. The compsn. may be used to control herpes simplex virus (HSV-1 or -2) herpes varicella/zoster; cytomegalovirus; influenza; human respiratory syncytial virus; Semliki Forest virus; HIV or Moloney Sarcoma virus. The combination of aFGF with sulphated polysaccharide is found to have a greater antiviral activity than expected for an additive effect. See also R25913-5. Human acidic fibroblast growth factor.

Viral infections; viruses; FGF; herpes simplex virus; HSV-1; HSV-2; herpes varicella; herpes zoster; cytomegalovirus; influenza; human respiratory syncytial virus; Semliki Forest virus; HIV; human immunodeficiency virus; Moloney Sarcoma virus. Synergistic antiviral composition contains BFGF and sulphated by Oysaccharide - for treating viral infections e.g. HSV-1 and -2, cytomegalovirus, HIV, influenza virus etc. Disclosure; Page 4; 20pp; English. 30-JAN-1992; 101541. 31-JAN-1991; GB-002145. 09-JAN-1992; GB-000410. (FRM) FARMITALIA ERBA SRL CARLO. Battlstini C, Carminati P, Garofano L, Mazue G, Ungheri D; WPI; 92-260792/32. R25914 standard; peptide; 140 AA. (first entry) 140 AA; Homo sapiens 26-JAN-1993 EP-497341-A. 05-AUG-1992 Sequence R25914; RESULT SECOND SEC

6; Gaps Lengt. 140; Score 920; DB 1; Lengt. 140 Pred. No. 6.60e-81; 1; Mismatches 2; Indels Ouery Match 70.8%; Best Local Similarity .93.8%; Matches 135; Conservative

ä

63 QYLAMDIDGI.LYGSQIPNEECLFLERLEE-----NHYNTYISKKHAEKNWFVGLKKNGS 116 3 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 62 18 LLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAE:SVGEVYIKSTETG 97 g ò g

98 QYLAMDTDGLLYGSQTPNEECLFLEERATPAPNHYNTYISKKHAEKNWFVGLKKNGS 157

117

à g

CKRGPRTHYGQKAILFLPLPVSSD 140

R34497;

ò

```
QYLAMDTDGLLYGSQTPNEECLFLERLEE-----NHYNTYISKKHAEKNWFVGLKKNGS 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          63 QYLAMDTDGLLYGSQTPNEECLFLERLEE-----NHYNTYISKKHAEKNWFVGLKKNGS 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                W04806;
9-DEC-1996 (first entry)
Human acidic fibroblast growth factor.
Endothalial cell growth factor; ECGF; blood vessel; regeneration;
heparin-Sepharose affinity chromatography; probe; oligonucleotide;
FGF; fibroblast growth factor; ss.
                                                                                            98 QYLAMDIDGLIYGSQIPNEECLFLERLEEAATPAPNHYNTYISKKHAEKNWFVGLKKNGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       38 LLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG
   38 LLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sites, etc. This synthetic gene was mutagenized to obtain a gene encoding a human recombinant aFGF (R74647) having activity sequence 140 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    New recombinant human acidic fibroblast growth factor - used to promote cell growth, to promote wound healing, for vascular grafts and blood vessel repair.

Claim 2; Column 30; 25pp; English.

Oligonucleotides were synthesized on the basis of the amino acid sequence of bovinne acidic fibroblast growth factor (aFGF) and used to produce a synthetic gene (given in Q88233) incorporating codons preferred by E. coli or mammalian cells, unique cloning
                                                                                                                                                                                                                                                                                                                                                                                                         25-SEP-1995 (first entry)
Human recombinant aFGF.
Acidic fibroblast growth factor; aFGF; vulnerary; anglogenesis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 920; DB 1; Length 140
Pred. No. 6.60e-81;
1; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Linemeyer DL,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            117 CKRGPRTHYGQKAILFLPLPVSSD 140
                                                                                                                                                                            117 CKRGPRTHYGQKAILFLPLPVSSD 140
                                                                                                                                                                                                             158 CKRGPRTHYGQKAILFLPLPUPVSSD 181
                                                                                                                                                                                                                                                                                                                                                        standard; protein; 140 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     W04806 standard; Protein; 140 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Kelly LJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 70.8%;
Best Local Similarity 93.8%;
Matches 135; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-054991.
US-190293.
US-654397.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            25-SEP-1992; US-951365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (MERI ) MERCK & CO INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gimenez-Gallego G,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 95-138983/18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12-SEP-1985;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  24-DEC-1984;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            30-MAY-1986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                25-SEP-1991;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US5401832-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 28-MAR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mitogen.
                                                                                                                                                                                                                                                                                                                            R74647
                                                                                                                                                                                                                                                                                                                                                                                      R74647
                                                       63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     86
                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NE WE ON WE WE WERE WAS NO SERVICE OF THE WORLD THE WORL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                 ద
                                                                                                                 ò
                                                                                                                                                                        ద
                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ï
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ij
                                                                                                                                                                                                                                                                                                                                           30-MAY-1991; 127435.
31-MAY-1990; JP-143388.
(TAKE) TAKEDA CHEM IND LTD.
WPI; 93-139564/JT.
FGF mutein prepr. useful for therapy of burn or thrombosis - by transformation of lymphocyte-contained animal cell by vector contq. DNA encoding FGF mutein
Disclosure; Page 3; 23pp; Japanese.
The invention covers muteins of FGF (esp. bFGF) which contain at least one glycosylation site. The muteins can be used to treat burns and thrombosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              63 QYLAMDIDGLLYGSQIPNEECLFLERLEE-----NHYNTYISKKHAEKNWFVGLKKNGS 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98 QYLAMDTDGLLYGSQTPNEECLFLERLEEAATPAPNHYNTYISKKHAEKNWFVGLKKNGS 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               18 LLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTEIG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                increased biological activity with (out) heparin, and promote
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     musculoskeletal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 1; Length 140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Disclosure; page 4; 36pp; English.
Amino acid sequence of human acidic fibroblast growth
factor (aFGF). The patent claims mutant forms which have
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 920; DB 1; Length 140 Pred. No. 6.60e-81; 1; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels

    used for promoting repair of soft tissue, muscult
tissue or vascular or nerve tissue and plasminogen

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 920; DB 1; Ler
Pred. No. 6.60e-81;
1; Mismatches 2;
                                                                                                                                                                     06-AUG-1993 (first entry)
Human acidic Fibroblast Growth Factor.
aFGF; mutein; glycoslation site; glycoprotein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     P90068;
1-NOV-1989 (first entry)
Human acid fibroblast growth factor
Human acidic fibroblast growth factor; mutant.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mutant acidic fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             117 CKRGPRTHYGQKAILFLPLPVSSD 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               140 AA
CKRGPRTHYGQKAILFLPLPVSSD 181
                                                                                      T
R34497 standard; protein; 140 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Thomas Jnr KA, Linemeyer DL; WPI; 89-167092/23.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 70.8%;
Best Local Similarity 93.8%;
Matches 135; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 70.8%;
Best Local Similarity 93.8%;
Matches 135; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .r 3
P90068 standard; protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            14-OCT-1988; 202306.
22-OCT-1987; EP-244431.
(MERI) Merck and Co.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  140 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    140 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               activator prodn
                                                                                                                                                                                                                                                                  sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
EP-319052-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14-JUN-1989
                                                                                                                                                                                                                                                                                                                         30-MAR-1993
```

158

ŏ

ద

ŏ

g

g ö

Sequence

ပ္ပင္တ

97

Sequence

m

a

Gaps

m

```
Best Local Similarity 93.8%;
Matches 135; Conservative
                                                                                                                                                                                                                                                                                                          Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                  J02306996-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               æ
                                                                                                                                                                                                                                                                                                                                      region
                                                                                                                                                                                                                                                                                                                                                                 region
                                                                                                                                                                                                                                                                                                                                                                                             region
                                                                                                                                                                                                                                                                                                                                                                                                                        region
                                                                                                                         88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      158
                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ద
                                         셤
                                                                                            유
                                                                                                                         à
                                                                                                                                                     유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                    õ
                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                            ä
                                                                                                                                                             Isolated, putified, biologically active bovine beta endothelial cell growth factor - useful to regenerate or treat damaged blood vessels bisclosure; Fig 8: 28pp; English.

Bovine beta endothelial cell growth factor (beta-ECGF; W0399) having a mol.wt. of 20 kD can be purified at least 16300 fold from bovine brain using hepatin-Sepharose affinity chromatography. ECGF is useful for, among other purposes, diagnostic applications and has potential in the treatment of damaged blood vessels or other endothelial cell-lined structures.

Human ECGF (737503) or fragments may be obtained using oligonucleotides (737504 to 737508) whose design is based on the sequence of bovine alpha- and beta-ECGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          63 QYLAMDTDGLLYGSQTPNEECLFLERLEE-----NHYNTYISKKHAEKNWFVGLKKNGS 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          98 QYLAMDTDGLLYGSQTPNEECLFLERLEEAATPAPNHYNTYISKKHAEKNWFVGLKKNGS 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mitogenic polypetide isolated from human brain tissue - useful for increasing vascular effect in eg wound healing, or generating endothelial cell linings for vascular prostheses, etc. Claim 3; Page 1; 31pp; English.
The PF of the invention was obtd. from human brain tissue. It has a mol. wt. of 15,200-16,500 (pref. 15,616-16,056) and has a high affinity for heparin. PFl and fragments are useful for promoting the growth of mesoderm-derived cells or neuroectoderm-derived cells and generating endothelial cell linings for vascular prostheses (all claimed). The polypeptides are useful for increasing vascularisation.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           13-JUN-1991 (first entry)
Sequence of human proteinaceous factor (PFI) with mitogenic activity.
Cell growth promoter; mitogen; vascularisation; wound healing.
Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                      18 LLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 97
                                                                                                                                                                                                                                                                                                                                                                                                                     3 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 62
                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                            ;
6
                                                                                                                                                                                                                                                                                                                                                            Score 920; DB 1; Length 140;
Pred. No. 6.60e-81;
1; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             70.8%; Score 920; DB 1; Length 140;
                                                                                                  (RHON ) RHONE POULENC RORER PHARM INC. Burgess W, Maciag T; WPI; 96-412132/41.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 117 CKRGPRTHYGQKAILFLPLPVSSD 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              158 CKRGPRTHYGQKAILFLPLPVSSD 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JT 6
P70995 standard; protein; 140 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Lobb RR, Harper JW, Strydom DJ; WPI; 87-285995/41.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /label= Asp-OH
                                                                                                                                                                                                                                                                                                                                                               Query Match 70.8%;
Best Local Similarity 93.8%;
Matches 135; Conservative
           03-SEP-1996.
03-MAR-1986; 835594.
03-MAR-1986; US-835594.
18-DEC-1987; US-134499.
22-APR-1991; US-693079.
27-NOV-1994; US-334884.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (HARD ) HARVARD COLLEGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14-OCT-1987.
06-MAR-1987; 301969.
07-MAR-1986; US-838096.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_difference 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EP-241136-A.
                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
BAP B
                                                                                                                                                                                                                                                                                              ၉၉၉၉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
```

```
ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Anti-acid antibody, for cancer diagnosis, etc. - is obtd. by using complex of partial peptide(s) of acid fibroblast growth articles as antigen.

Tactor and protein as antigen.

Disclosure: Fig 1: 19pp: Japanese.

The was deduced from a gene used to produce recombinant aFGF.

The was deduced from the protein, esp. from A-D can be used to as antigens to produce anti-aFGF antibodies. The peptides must comprise 8-10 continuous AAs from A or B (claims 5 and 6 resp.),

7-10 continuous AAs from C (claim 7), or 8-9 continuous AAs from D comprise 8). The Abs can be used for immunochemically measuring aFGF, and for purifying aFGF. They are useful as reagents in the diagnosis of various cancers or diseases of the CNS. Purified aFGF, has wound healing and nerve cell proliferating properties.
                                                                                                                                                                                                     QYLAMDTDGLLYGSQTPNEECLFLERLEE-----NHYNTYISKKHAEKNWFVGLKKNGS 116
                                                                                                                                                                                                                                      QYLAMDTDGLLYGSQTPNEECLFLERLEE-----NHYNTYISKKHAEKNWFVGLKKNGS 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 62
                                                                                                                                            38 LLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 141;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 70.8%; Score 920; DB 1; Length 141 Best Local Similarity 93.8%; Pred. No. 6.60e-81; Matches 135; Conservative 1; Mismatches 2; Indels
                                   Indels
Pred. No. 6.60e-81;
1; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     15-APR-1991 (first entry)
Human acidic fibroblast growth factor gene.
aFGF; antibody; antigen; cancer; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CKRGPRTHYGQKAILFLPLPVSSD 141
                                                                                                                                                                                                                                                                                                                       117 CKRGPRTHYGQKAILFLPLPVSSD 140
                                                                                                                                                                                                                                                                                                                                                     R10527 standard; Protein; 141 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             04-JUL-1988; JP-166275.
03-JUL-1989; JP-172542.
(TAKE) TAKEDA CHEMICAL IND KK.
WPI; 91-040150/06.
N-PSDB; Q10399.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /label= B
104. 114
/label= C
132. 141
/label= D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2. .12
/label= A
56. .67
```

1;

```
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             W04805 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ношо
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PATE PATE SOLUTION SO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The synthetic arcg gene incorporates useful restriction sites at frequent intervals to facilitate the cassette mutagenesis of selected regions. Also included are flanking sites to simplify the incorporation of the gene into any expression system. The arck mol. acts in a cascade effect to control endothelial cell activity either co-ordinately through synergistic effects or via independent routes. The regulation of endothelial cells is essential for thrombogenesis. Their stimulation and control by these factors is also thought to be important in the development of tumours and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20-APR-1999 (first entry)
Human beta-endothelial cell growth factor (ECGF) protein sequence.
Endothelial cell growth factor; ECGF; cleavable; recombinant; repair; regenerate; blood vessel; endothelial cell; human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            68 QYLAMDIDGILYGSQIPNEECLFLERLEE-----NHYNTYISKKHAEKNWFVGLKKNGS 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              98 QYLAMDTDGLLYGSQTPNEECLFLERLEEAATPAPNHYNTYISKKHAEKNWFVGLKKNGS 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18 LLDANYKRPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ဌ
                                                                                                                                                                                                                                                                                              /note= "sites corresp. to two stop codons of
the DNA sequence"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gene encoding human acidic fibroblast growth factor -
incorporates useful restriction sites at frequent intervals
facilitate cassette mutagenesis of specified regions.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 920; DB 1; Length 151;
Pred. No. 6.60e-81;
1; Mismatches 2; Indels
                                                                                               Human aFGF encoded by synthetic gene.
Acidic fibroblast growth factor; aFGF; thrombogenesis; atherosclerosis; tumors.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11-APR-1997; US-840088.
(RHON ) RHONE-POULENC RORER PHARM INC.
                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          122 CKRGPRTHYGQKAILFLPLPVSSD 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CKRGPRTHYGQKALLFLPLPVSSD 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          л 9
W92283 standard; protein; 154 AA.
R05789 standard; Protein; 151 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 70.8%;
Best Local Similarity 93.8%;
Matches 135; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                           08-AUG-1988; GB-018775.
(BRBI-) Brit Bio-Tech Ltd.
Davies JA, Johnson ID;
WPI; 90-109882/15.
                                                                    (first entry)
                                                                                                                                                                                                                                                            misc_difference 146. .147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               04-NOV-1996; US-743261.
03-MAR-1986; US-835594.
18-DEC-1987; US-134499.
29-APR-1991; US-693079.
27-NOV-1991; US-799859.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  03-NOV-1994; US-334884
07-JUN-1995; US-472964
                                                                                                                                                                                                                                                                                                                                                                                                                               08-AUG-1988; 018775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       840088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     151 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   atherosclerosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N-PSDB; Q03873
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens.
US5849538-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    03-MAR-1986;
18-DEC-1987;
                                                                22-AUG-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11-APR-1997
                                                                                                                                                                                                                                                                                                                                                                     GB2223496-A
                                                                                                                                                                                                                                                                                                                                                                                                    -APR-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        15-DEC-1998
                                                                                                                                                                                                     Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           W92283;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DD ACC DD
   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
```

```
growth factor - useful for producing recombinant endothelial cell growth factor proteins
Glaim 1; Column 16; 23pp; English.

This represents the amino acid sequence of human beta-endothelial cell growth factor (EGGF). The invention is directed to DNA encoding alpha or beta-EGGF and plasmids comprising the DNA sequences. The DNA encodes a cleavable signal peptide and an EGGF, where removal of the signal peptide yields a mature form of the EGGF. The DNA is used to produce recombinant ECGF proteins, which can be used in treatments to repair or regenerate blood vessels or other structures lined with endothelial cells.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Isolated, purified, biologically active bovine beta endothelial cell growth factor - useful to regenerate or treat damaged blood vessels bisclosure; Fig 8; 28pp; English and the beta-endothelial cell growth factor (beta-ECGF; W0399) having a mol.wt. of 20 kD can be purified at least 16300 fold from bovine brain using heparin-sepharose affinity chromatography. ECGF is useful for, among other purposes, diagnostic applications and has potential in the treatment of damaged blood vessels or other endothelial cell-lined structures. Human ECGF (137503) or fragments may be obtained using oligonucleotides (T37504 to T37508 to T37509) whose design is based on the sequence of bovine alpha- and beta-ECGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OYLAMDTDGLLYGSQTPNEECLFLERLEE-----NHYNTYISKKHAEKNWFVGLKKNGS 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      38 LLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      29-DEC-1996 (first entry)
Human beta-endothelial cell growth factor.
Human beta-endothelial cell growth factor.
Human beparin cell growth factor, ECGF; blood vessel; regeneration; heparin-Sepharcs affinity chromatography; probe; oligonucleotide; EGF; fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  17 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG
                                                             cell
Burgess W, Drohan WN, Jaye M, Maciag T;
WPI: 99-069734/06.
DNA encoding a cleavable signal peptide and an endothelial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Match 70.8%; Score 920; DB 1; Length 154 Local Similarity 93.8%; Pred. No. 6.60e-81; Mes 135; Conservative 1; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 920; DB 1; 1
Pred. No. 6.60e-81;
1; Mismatches 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (RHON ) RHONE POULENC RORER PHARM INC.
Burgess W, Maciag T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               131 CKRGPRTHYGQKAILFLPLPVSSD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   158 CKRGPRTHYGQKAILFLPLPVSSD 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            standard; Protein; 154 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ouery Match 70.8%;
Best Local Similarity 93.8%;
Matches 135; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           18-DEC-1987; US-134499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               29-APR-1991; US-693079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-799859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           27-NOV-1991; US-799859
03-NOV-1994; US-334884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      03-SEP-1996,
03-MAR-1986, 835594,
03-MAR-1986, US-835
                                                                                                                                                                                                                                                                                                                                                                                                                                                      154 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 96-412132/41.
N-PSDB; T37503.
```

158

셤 ð 셤 RESULT
ID WO
AC WO
DT 17
DE HU
KW ET

```
25-JUN-1990 (first entry)
Human acidic fibroblast growth factor.
Acidic fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (BIOT-) Biotechn Res Assoc.
Fiddes JC, Abraham JA, Protter A;
WPI; 89-009785/02.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   131 CKRGPRTHYGQKAILFLPLPVSSD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              T 13
P94037 standard; protein; 155 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          / Match
Local Similarity 93.8%;
hes 135; Conservative
                        US-743261.
US-835594.
US-134499.
                                                                                                         29-APR-1991; US-693079.
27-NOV-1991; US-799859.
03-NOV-1994; US-334884.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           06-JUL-1988; 306158.
07-JUL-1987; US-070797.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N-PSDB; N9308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11-JAN-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          P94037;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  78
DAC DATE OF THE 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ï
                                                   77 QYLAMDIDGLLYGSQIPNEECLFLERLEE-----NHYNTYISKKHAEKNWFVGLKKNGS 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              17 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            38 LLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        damaged blood vessels, etc.

Claim 1: Column 16: 22pp: English.

Human recombinant endothelial cell growth factors (ECGF) beta

Human recombinant endothelial cell growth factors (ECGF) beta

They can be produced in transformed prokaryotic or eukaryotic host
cells using DNA sequences (T4598 and T45984, respectively) derived

from the complete human ECGF CDNA (T45985). Large quantities of

the ECGFs are produced by culturing the host cells and recovering

the proteins. ECGFs have utility in the growth and amplification

of endothelial cells in culture. They can potentially be used to

treat damaged blood vessels and other endothelial cell-lined

structures, and also have diagnostic applns.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Recombinant human endothelial cell growth factors - for treating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                w75414;
0.2-MR-1999 (first entry)
Human beta-endothelial growth factor.
Human; endothelial cell growth factor; ECGF; brain stem; probe; hybridisation; bovine; wound healing; prosthetic device.
Homo saplens.
U5587826-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 920; DB 1; Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pred. No. 6.60e-81;
1; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                              17-MAR-1997 (first entry)
Human endothelial cell growth factor-beta.
Endothelial cell growth factor-beta; ECGF-beta.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 03. MAR-1986; 835594.
03. MAR-1986; US-835594.
18-DEC-1997; US-134499.
27-NOV-1991; US-799859.
03-NOV-1991; US-799859.
07-JUN-1995; US-3472964.
(RHON ) RHONE POULENC RORER PHARM INC.
BUTGESS W, Drohan WN, Jaye M, Maciag T; WHI: 96-505421/50.
                                                                                                                                                                     131 CKRGPRTHYGQKAILFLPLPVSSD 154
                                                                                                                                                                                                   131 CKRGPRTHYGQKAILFLPLPVSSD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ž
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     W75414 standard; protein; 154 AA
                                                                                                                                                                                                                                                                                                                   r 11
W06816 standard; Protein; 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Rest Local Similarity 93.8%;
atches 135; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens.
US5571790-A.
05-NOV-1996.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Seguence
```

158

ö

g

g

ð

```
cell growth factor polypeptides cell growth factor polypeptides cell growth factor polypeptides cell mi; Column 16; 23pp; English.
This sequence represents the amino acid sequence of the mature human beta endothelial cell growth factor (b-ECGF). This amino acid sequence is identical to the alpha-ECGF but the beta sequence contains an extra 20 N-terminal amino acids. The sequence was isolated from a human brain stem cell DNNA library using a probe designed based on fragments of the bovine ECGF (see W75416-W75418). The ECGF protein can be used in compositions for promoting wound healing. ECGF is also used to grow cells on a prosthetic device.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      77 QYLAMDTDGLLYGSQTPNEECLFLERLEE-----NHYNTYISKKHAEKNWFVGLKKNGS 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              98 QYLAMDIDGLLYGSQIPNEECLFLERLEBAATPAPNHYNTYISKKHAEKNWFVGLKKNGS 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QYLAMDIDGLLYGSQTPNEECLFLERLEE-----NHYNTYISKKHAEKNWFVGLKKNGS 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    18 LLDANYKRPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6: Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Compositions for promoting wound healing – containing endothelial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 70.8%; Score 920; DB 1; Length 154
Best Local Similarity 93.8%; Pred. No. 6.60e-81; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 920; DB 1; Length 155
Pred. No. 6.60e-81;
1; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Recombinant DNA encoding new fibroblast growth factor analogues - useful eg for accelerating wound healing a to control neovascularisation.

Disclosure: p; English.

See also P94038.
07-JUN-1995; US-472964.
(RHON ) RHONE-FOULENC RORER PHARM INC.
Burgess W, Drohan WN, Jaye M, Maclag T;
WPI; 98-594032/50.
```

```
Sequence
                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Search
셤
                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                              ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FGF-1.
FGF-1; fibroblast growth factor; cytotoxic conjugate; fusion protein; saporin; cytostatic; tumor; diabetes; rheumatoid arthritis.
98 QYLAMDTDGLLYGSQTPNEECLFLERLEEAATPAPNHYNTYISKKHAEKNWFVGLKKNGS 157
                                                                                                                                                                                                                                                                                                                                                                                                      Disclosure, Page 108-109; 128pp; English.

Novel fusion proteins comprise FGF linked to saporin. FGF-1 to -9 may be used, pref. FGF-1 (R70812), FGF-5 (R70813), FGF-7 (R70814) or FGF-8 (R70815) muteins, in which at least 1 Cys residue is replaced by conservative Ser substitutions. The fusion proteins are potent cytocidal agents to cells bearing the FGF receptor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         18 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               38 LLDANYKKPKILIYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                         (PRIZ-) PRIZM PHARM INC.
WHIT-) WHITTHER INST DIABETES & ENDOCRINOLOGY.
Baird AJ, Lappi DA, Sosnowski BA;
WPI; 95-082038/11.
WPW monogenous preparations of cytotoxic conjugates and DNA -
contain fibroblast growth factors and cytotoxic agents for
treating FGF conditions such as tumours, diabetes and rheumatoid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13-MAY'1991 (first entry)
Sequence encoded by complete CDNA sequence of human endothelial
cell growth factor (ECGF).
Endothelial cell regeneration; blood vessel regeneration.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 920; DB 1; Length 155; Pred. No. 6.60e-81; 1; Mismatches 2; Indels
                                                                                                                                                                                                         note= "Cys may be replaced by Ser"
                                                                                                                                                                                                                                  /note= "Cys may be replaced by
                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /label= Acidic FGF
22. .155
/label= Alpha ECGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2. .15
/label= Beta ECGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JT 15
P70482 standard; Protein; 155 AA.
P70482;
                       132 CKRGPRTHYGQKAILFLPLPVSSD 155
                                     Z
                                                                                   T 14
R70812 standard; protein; 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 70.8%;
Best Local Similarity 93.8%;
Matches 135; Conservative
                                                                                                         R70812;
01-SEP-1995 (first entry)
                                                                                                                                                                                                                                                                                 02-AUG-1993; US-099924.
29-OCT-1993; US-145829.
                                                                                                                                                                                                                                             WO9503831-A.
09-FEB-1995.
27-JUL-1994; U08511.
                                                                                                                                                                                                                        misc_difference 132
                                                                                                                                                                                               misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                               arthritis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein
                                                                                  RESULT ID R7
ID R7
AC R7
DDE FG
KW FG
KW SG
CS HG
FT M1
                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  õ
                     g
                                               à
```

```
PF 03-MAR-1986; US-835594.
PR 03-MAR-1986; US-835594.
PR 26-MAR-1986; US-835594.
PA (MELCA) MELOY LAB INC.
PA (RORE) RORER BIOTECHN ROWN HEALING PROMOTE COLORS CONT.
PA (RORE) RORER BIOTECHN ROWN A GENOME AND ROME AND R
```

Matches 135; Conservative 1; Mismatches 2; Indels 6; Gaps

Db 18 LPPGNYKRPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 77

QY 38 LLDANYKRPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 97

Db 78 QYLAMDTDGLLYGSQTPNEECLFLERLEE-----NHYNTYISKKHAEKNWFVGLKKNGS 131

QY 98 QYLAMDTDGLLYGSQTPNEECLFLERLEEAATPAPNHYNTYISKKHAEKNWFVGLKKNGS 157

Db 132 CKRCPRTHYGQKALLFLPLPVSSD 155

QY 158 CKRCPRTHYGGKALLFLPLPVSSD 181

Ĥ

Search completed: Tue Aug 29 15:48:52 2000 Job time: 24 secs.

***	TM)	* * * *
******		*****
*****	'	* * * * * *
******	[	*****
*******		* * * * * * * * *
******		***
*******		****
*******	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	****
在水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水		在水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

MPsrch\_pp protein - protein database search, using Smith-Waterman algorithm Tue Aug 29 15:47:36 2000; MasPar time 11.25 Seconds 758.757 Million cell updates/sec :uo

ular output not generated.

<u>,</u>)

>US-09-121-017B-5 (1-181) irom USOVIZIO17B.pep 1300 1 MSRGAGRVQGTLQALVFLGV......PRTHYGQKAILFLPLPVSSD 181 Title: Description: Perfect Score:

Sequence:

PAM 150 Gap 11 Scoring table:

142080 seqs, 47172406 residues

Searched:

Post-processing: Minimum Match 0% Listing first 45 summaries

Mean 43.426; Variance 76.019; scale 0.571 1:pirl 2:pir2 3:pir3 4:pir4 Database:

Statistics:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

₹(

		æ			SUMMAKIES		
ult No.	Score	Ouery Match	Ouery Match Length DB	DB	0	Description	Pred. No.
1	920	70.8	155	-	A33665	acidic fibroblast gro	1.49e-18
~	903	69.5	155	-1	A60721	fibroblast	1.58e-17
m	006	69.5	155	~	D37360	ய	8.10e-17
4	006	69.3	155	7	S04147		8.10e-17
'n	889	. 68.4	152	~	JH0476	acidic fibroblast gro	3.24e-17
9	851	65.5	155		GKBOA		3.07e-16
7	850	65.4	155	7	A60130	acidic fibroblast gro	5.29e-16
œ	840	64.6	155	7	JW0055	fiblobrast growth fac	1.21e-16
0	464	35.7	189	7	A48834	basic fibroblast grow	1.76e-76
10	458	35.2	157	-	GKBOB	basic fibroblast grow	3.99e-75
11	453	34.8	146	Н	S00185	basic fibroblast grow	5.35e-74
12	451	34.7	210	7	A32398	basic fibroblast grow	1.51e-73
13	449	34.5	154	7	A31674	basic fibroblast grow	4.26e-73
14	445	34.2	154	~	C37360	basic fibroblast grow	3.39e-72
15	439	33.8	164	~	S31622	basic fibroblast grow	7.56e-71
16	427	32.8	155	-	A40117		3.72e-68
17	407	31.3	137	7	146711	fibroblast growth fac	1.09e-63
18	305	23.5	208	~	A48137	fibroblast growth fac	2.39e-43
13	305	23.5	208	~	S66486	growth	2.39e-41
20	285	21.9		~	JC5941	fibroblast growth fac	4.40e-37
21	280	21.5		7	JC5940	fibroblast growth fac	5.03e-36
22	275	21.2	208	~	S14192	fibroblast growth fac	5.72e-35
23	267	20.5	9	7	JH0708	fibroblast growth fac	2.75e-33

3.06e-32 2.49e-29 2.68e-28	2.68e-28 1.11e-27 1.11e-27 1.78e-27	2.85e-27 2.85e-27 7.32e-27 1.88e-26	1.88e-26 5.00e-25 1.27e-24 2.03e-24	5.14e-24 5.09e-20 6.23e-16 1.34e-14 2.08e-14
cken 19 prote 1e growt	fibroblast growth fac fibroblast growth fac fibroblast growth fac transforming protein fibroblast growth fac	robla prote growt owth	sforming poblast groyonic Fibroblast grooblast grooblast grooblast gro	HST protein - bowine fibroblast growth fac transforming protein keratinocyte growth f basic fibroblast grow
150588 S39582 S49501	S20102 A36301 S04742 A36207 S68144	S23595 TVMST2 I48610 S26049	TVHUF5 JG0184 S54407 I50710 JC4627	JC4268 TVHUHS TVMSHS B46289 A32484
212	22112	0100	40000	2442
220	201 201 203 204 204 204	187 245 194 194	168 192 194 256	206 202 202 125
20.2 19.1 18.7	18 18 18 7 18 19 19 19	18.3 18.3 18.0	18.0 17.5 17.2	17.1 13.9 13.9 13.3
262 248 243	22 2 2 2 2 2 2 3 3 9 9 9 9 9 9 9 9 9 9 9	238 236 234	224 225 224 224	222 202 181 174 173
22 25 26 36	2222 330887	3332	8 8 8 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	44444 1224 1443

### ALIGNMENTS

	Gospodarowicz, D.; Abraham, J.A.; Shipley, G.D.; Fidder J.C.  Biochem. Blophys. Res. Commun. (1989) 164:1121-1129 Structural analysis of the gene for human acidic fibroble growth factor.  Gerences MUID:90073637 on A3365 ecule_type DNA streferences GB:M30491 Mang, W.P.; Lehtoma, K.; Varban, M.L.; Krishnan, I.; Chlu Nol. Cell. Biol. (1989) 9:2387-2395 Gloning of the gene coding for human class 1 heparin-binc growth factor and its expression in fetal tissues.  A32316 Oloning of the gene coding for human class 1 heparin-binc growth factor and its expression in fetal tissues.	##residues ##residues ##cross-references GB:M23087; NID:g183875; PIDN:AAA52638.1; PID:g386768 ##cross-references GB:M23087; NID:g183875; PIDN:AAA52638.1; PID:g386768 ##cross-references GB:M23087; NID:g183875; PIDN:AAA52638.1; PID:g386768 ##cuthors Wang, W.P.; Quick, D.; Balcerzak, S.P.; Needleman, S.W.; ##ournal Oncogene (1991) 6:1521-1529 ##cross-references (1991) 6:1521-1529 ##cross-references MUID:g2019819 ##cross-references MUID:g2019819 ##cross-references MUID:g2019819 ##residues ##residues ##residues ##cross-references EMBL:M23086
--	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

```
##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CLASSIFICATION
                                               #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                        #accession
                                                                                                                             #authors
#journal
                                                                                                                                                                                                                                                                                                                                                                #authors
#journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                    #title
                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            16-155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENETICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #authors Payson, R.A.; Canatan, H.; Chotani, M.A.; Wang, W.P.; Harris, S.E.; Myers, R.L.; Chiu, I.M.
#journal Nucleic Acids Res. (1993) 21:489-495
#title Cloning of two novel forms of human acidic fibroblast growth factor (aFGF) mRA.
#cross-references MUID:93181239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##residues 1-40 ##label RES
##cross-references GB:M60515; NID:9178226; PIDN:AAA51672.1; PID:9553170;
GB:M60516; NID:9178232; PID:9553171
                                                                                                                                                                                                                                                                                                                                                                         #accession JH0707
##molecule_type mRNA
##rosidues 1-155 ##label YUY
##cross-references GB:X65778; NID:g396163; PIDN:CAA46661.1; PID:g396164
                                                                                                                                                                    ##cross-references EMBL:X51943; NID:g32435; PIDN:CAA36206.1; PID:g32436
#authors Chiu, I.M.; Wang, W.P.; Lehtoma, K.
#journal Oncogene (1990) 5:755-762
#title Alternative splicing generates two forms of mRNA coding for human heparin.binding growth factor 1.
#cross-references MUID:90265618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #authors Crumley, G.; Dionne, C.A.; Jaye, M.
#journal Biochem. Biophys. Res. Commun. (1990) 171:7-13
#title The gene for human acidic fibroblast growth factor encodes two upstream exons alternatively spliced to the first coding exon.
#cross-references MUID:90365758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A. Biochem. Biophys. Res. Commun. (1986) 138:611-617
The complete amino acid sequence of human brain-derived
                                                                                                                                                                                                                                                                     #journal Science (1986) 233:541-545
#title Human endothelial cell growth factor: cloning, nucleotide sequence, and chromosome localization.
#cross-references MUID:86261805
                                                                                                                                                                                                           Jaye, M.; Howk, R.; Burgess, W.; Ricca, G.A.; Chiu, I.M.; Ravera, M.W.; O'Brien, S.J.; Modi, W.S.; Maciag, T.; Drohan, W.N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #authors Harper, J.W.; Strydom, D.J.; Lobb, R.R.
#journal Biochemistry (1986) 25:4097-4103
#cross-references MUID:86296647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##molecule_type mRNA ##residne
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                faccesion Azsses
##molecule_type protein
16-155 ##label HAR
                                                                                                                           ##molecule_type mRNA
##residues 1-155 ##label CHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##molecule_type mRNA
##residues 1-58 ##label PA2
##cross-references GB:L01487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##residues 1-58 ##label PAY ##cross-references GB:L01485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A23553
                                                                                                                                                                                            A24662
                                                                                                                                                                                                                                                                                                                                                            A24662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         $35535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S35536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   I39413
                                                                                                         A43804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #accession
##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #accession
                                                                                                         #accession
                                                                                                                                                                                                                                                                                                                                                                #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #authors
#journal
#title
                                                                                                                                                                                                               #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
```

```
#authors Gautschi-Sova, P.; Muller, T.; Bohlen, P.
#journal Blochem. Blophys. Res. Commun. (1986) 140:874-880
#title Amino acid sequence of human acidic fibroblast growth factor.
#cross-references MUID:87048871
#accession A26386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       *product fibroblast growth factor 1 *status experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Chavan, A.J.; Haley, B.E.; Volkin, D.B.; Marfia, K.E.; Verticelli, A.M.; Bruner, M.W.; Draper, J.P.; Burke, C.J.; Widdaugh, C.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##ncolecule_type protein
##residues 16.30,'X',32-38;73-75,'X',77-97,'X',99-101;128-131,'X',
##residues 133-140,'X',142-152 ##label CHA
                                                                                                                                                                             Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A. Blochem. Blophys. Res. Commun. (1986) 135:541-548 Human brain-derived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitogenic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                98 QYLAMDTDGLLYGSQIPNEECLFLERLEEAATPAPNHYNTYISKKHAEKNWFVGLKKNGS 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                78 OYLAMDIDGLLYGSQIPNEECLFLERLEE-----NHYNIYISKKHAEKNWFVGLKKNGS 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #journal Biochemistry (1994) 33;7193-7202
#title Interaction of nucleotides with acidic fibroblast growth factor (FGF-1).
#cross-references MID:94271773
#accession A53639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gautschi, P.; Frater-Schroder, M.; Bohlen, P. FEBS Lett. (1986) 204:203-207 Fartial molecular characterization of endothelial cell mitogens from human brain: acidic and basic fibroblast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            18 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 38 LIDANYKKPKILYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTEIG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #binding_site carbohydrate (Asn) (covalent) #status
absent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #gene GDB:FGF1; FGFA #cross-references GDB:119909; OMIM:131220 ##cross-references GDB:119909; OMIM:131220 #map_position 5q31.3-5q33.2 #introns 5q7/1; 91/2 87/7; 91/2 81/2 821F7CATION #superfamily fibroblast growth factor alternative splicing; growth factor alternative splicing; growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #length 155 #molecular-weight 17460 #checksum 9243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    y Match 70.8%; Score 920; DB 1; Le Local Similarity 93.8%; Pred. No. 1.49e-182; hes 135; Conservative 1; Mismatches 2;
acidic fibroblast growth factor.
*cross-references MUID:86295741
*accession A24820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##molecule_type protein
##residues 16-30,'X',32-49 ##label GAU
                                                                                 ##molecule_type protein
##residues , 16-155 ##label GIM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##molecule_type protein
##residues 16-155 ##label GA2
                                                                                                                                                                                                                                                                                                                                                                                                   ##experimental_source brain
NCE A91364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #label MAT\
                                                                                                                                                                                                                                                                                                     activities.
*cross-reference's MUID:86186784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            growth factors.
#cross-references MUID:86275260
#accession A24301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##experimental_source brain
                                                                                                                                                                                                                                                                                                                                                                                          ##molecule_type protein
                                                                                                                                                A90122
                                                                                                                                                                                                                                                                                                                                                                    A24243
```

ij,

 $\sim$ 

```
##molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S04147
                  ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CLASSIFICATION
KEYWORDS
SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ALTERNATE_NAMES
                                                                                                                                 #introns
CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #authors
#journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                              135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #title
                                                                                                 GENETICS
                                                                                                                    #dene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                SUMMARY
                                                   COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
ENTRY
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
                                                                                                                                                                                                                                                                ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             엄
                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                            A60721 #type complete
acidic fibroblast growth factor - golden hamster
heparin-blading growth factor 1
#formal_name Mesocricetus auratus #common_name golden hamster
10.5ep-1999 #sequence_revision 10.5ep-1999 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Dev. Biol. (1990) 138:454-463
Isolation of CDNAs encoding four mouse FGF family members and
characterization of their expression patterns during
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ĥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##residues 1-155 ##label HEB
##cross-references GB:M30641; NID:g193284; PIDN:AAA37618.1; PID:g309236
                                                                                                                                                                                                                                                                               aFGF/HGBF-I gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hebert, J.M.; Basilico, C.; Goldfarb, M.; Haub, O.; Martin,
                                                                                                                                                                                                                            authors Hall, J.A.; Harris, M.A.; Malark, M.; Mansson, P.E.; Zhou, H.; Harris, S.E.

journal J. Cell. Biochem. (1990) 43:17-26
title Characterization of the hamster DDT-1 cell aFGF/HGBF-1 gen and cDNA and its modulation by steroids.

cross-references MUID:90270291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                98 QYLAMDTDGLLYGSQTPNEECLFLEERAATPAPNHYNTYISKKHAEKNWFVGLKKNGS 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          78 QYLAMDIDGLLYGSQIPNEECLFLERLEE-----NHYNTYTSKKHAEKNWFVGLKKNGS 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               18 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETG 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #formal_name Mus musculus #common_name house mouse
17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change
16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                          for 1-155 ##label HAL
#superfamily fibroblast growth factor
growth factor; heparin binding
#length 155 #molecular-weight 17403 #checksum 9573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #authors Madial, F.; Hackshaw, K.V.; Chiu, I.M.
#journal Gene (1996) 179.231-236
#title Cloning and characterization of the mouse Fgf-1
#cross-references MUID:97128312
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 903; DB 1; Length 155;
Pred. No. 1.58e-178;
2; Mismatches 4; Indels
                                                                                                                                                                                                                                                                                                                                              not compared with conceptual translation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            acidic fibroblast growth factor - mouse aFGF; FGF-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #type complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           132 CKRGPRTHYGQKAILFLPLPVSSD 155
132 CKRGPRTHYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              embryogenesis.
s MUID:90201563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity 91.7%;
Matches 132; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            D37360; JC5231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##molecule_type mRNA
##residues 1-15
                                                                                                                                                                                                                                                                                                                                                            ##molecule_type DNA
##residues 1-1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              D37360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A37360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             D37360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               G.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JC5231
                                                                                                                                                                                                                                                                                                                               A60721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cross-references
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
ERNATE_NAMES
ANISM
                                                                                                                                ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                                                                           CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##status
                                                                                                                                                                                                                                                                                                                                              ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #accession
                                                                                                                                                                                                                                                                                                                             accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               *accession
                                                                                                                                                                                                                                                              #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             m
                                                                                N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #authors
                                                                                                                                                                                                                              #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | journal
                                                                                                                                                                                               ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REPERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                REFERENCE
                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                              KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                           SUMMARY
                                                                                RESULT
a
                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
```

```
##residues 1-155 ##label GOO 1-155 ##label GOO 1-155 ##cross-references FMBL:X14232, 1-155 ##cross-references FMBL:X14232, 1-155 #flooblast growth factor growth factor; heparin binding flooplast growth factor; heparin binding #length 155 #molecular-weight 17,17 #---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Goodrich, S.P.; Yan, G.C.; Bahrenburg, K.; Mansson, P.E.
Nucleic Acids Res. (1989) 17:2867
The nucleotide sequence of rat heparin binding growth factor
                                                                                                                                                                                                                                                                                            ï
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JH0476 #type fragment acidic fibroblast growth factor - pig (fragment) #formal_name Sus scrofa domestica #common_name domestic pig 31-Mar-1992 #sequence_revision 31-Mar-1992 #text_change
                                                                                                                                                                                                                                                                                                                                                             AMDTEGLLYGSQTPNEECLFLERLEE-----NHYNTYTSKKHAEKNWFVGLKKNGSCKR 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                 41 ANYKRPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       81 AMDTEGLLYGSQTPNEECLFLERLEE-----NHYNTYTSKKHAEKNWFVGLKKNGSCKR 134
                                         neovascularization in anglogenic erosis, cancer and inflammatory
                                                                                                                                                                                                                                                                                                                                   21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQYL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                     #checksum 9341
                                                                                                                                                                                                                                                                                            ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                  Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 155;
                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                  ##cross-references GB:U36456
This protein is an inducer of neovascularization disease including atherosclerosis, cancer and
                                                                                                                                  Fgf-1
57/1; 91/3
57/1; 91/3
flength 155 #molecular-weight 17417
                                                                                                                                                                                                                                           Score 900; DB 2; LA
Pred. No. 8.10e-178;
3; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            69.2%; Score 900; DB 2; Lv 92.2%; Pred. No. 8.10e-178; ative 3; Mismatches 2;
1-155 ##label MAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GPRTHYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       161 GPRTHYGQKAILFLPLPVSSD 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GPRTHYGOKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cross-references MUID:89240051
                                                                                                                                                                                                                                             Ouery Match
Best Local Similarity 92.2%;
Matches 130; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Local Similarity 92.2%;
Matches 130; Conservative
                                                                                        autoimmune disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
DATE
```

```
Laurent, M
                                                                                                                                                                                                                                                                                                 ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##residues
                                                                                                                                                                                                                                  #submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #accession
                                                                                                                                                                                                                                                        #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #accession
                     #journal
                                                                                                                                                                                                                #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Halley, C.; Courtois, Y.; Laurent, M.
Nucleic Acids Res. (1988) 16:10913
Nucleotide sequence of bovine acidic fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ï
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Renaud, F.; Desset, S.; Bugra, K.; Halley, C.; Philippe, J.M.; Courtols, Y.; Laurent, M. Blochem. Blophys. Res. Commun. (1992) 184:945-952 Heterogeneity of 3' untranslated region of bovine acidic FGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Alterio, J.; Halley, C.; Brou, C.; Soussi, T.; Courtois, Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GKBOA #type complete
acidic fibroblast growth factor precursor - bovine
acidic fibroblast growth factor II; heparin-binding growth
factor I; prostatropin
#formal_name Bos primigenius taurus #common_name cattle
13.Aug-1986 #sequence_revision 03.Feb-1994 #text_change
                                                                                                                                                                                                       ##residues 1-152 ##label SCH
##cross-references EMBL:X60317; NID:g1873; PIDN:CAA42869.1; PID:g1874
##experimental_source heart
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JH0613; S02102; S02661; S22065; B24663; A94281; S03953;
A91010; A24477; B25043; C25043; A25043; A24473; A60884;
A37892; B37892; A61198; I46024; A34477; A01385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        78 QYLAMDISGLLYGSQIPSEECLFLERLEE-----NHYNTYISKKHAEKNWFVGLKKNGS 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##residues 1 1-155 ##label HAL ##cross-references EMBL:X13221; NID:9347; PIDN:CAA31610.1; PID:9348
                                                                                                                                                                                                                                                                       the hydrophobic core residues are packed around the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    18 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          internal symmetry axis
protein belongs to the fibroblast growth factor family.
#superfamily fibroblast growth factor
growth factor; heparin binding
                                                      #authors Schmidt, M.; Sharma, H.S.; Schott, R.J.; Schaper, W. #journal Blochem. Blophys. Res. Commun. (1991) 180:853-859 #title Amplification and sequencing of mRNA encoding acidic floroblast growth factor (aFGF) from porcine heart. #cross-references MUID:92062117
                                                                                                                                                                                                                                                                                                                                                                                                                        #binding_site heparin (Lys) #status predicted
#length 152 #checksum 1124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 152;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                      #region nuclear location signal/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   68.4%; Score 889; DB 2; La
larity 91.5%; Pred. No. 3.24e-175;
Conservative 2; Mismatches 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        58-155 ##label REN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         132 CKRGPRTHYGQKAILFLPLPV 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               transcripts.
#cross-references MUID:92246990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #cross-references MUID:89083506
#accession S02102
                 JH0476; S20072
JH0476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18-Jun-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##molecule_type mRNA
                                                                                                                                                                                 ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity
nes 129; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S02102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##residues
                                                                                                                                                                                                                                                                                                                 This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                                                       CLASSIFICATION
                                                                                                                                                                  #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #journal
               ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #title
                                                                                                                                                                                                                                                                                                                                                                              ATURE
22-28
133
SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
                                                                                                                                                                                                                                                                                                                 COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
```

```
#authors Gimenez-Gallego, G.; Rodkey, J.; Bennett, C.; Rios-Candelore, M.; Disalvo, J.; Thomas, K.
#journal Science (1985) 230:1385-1388
#title Brain-derived acidic fibroblast growth factor: complete amino acid sequence and homologies.
#cross-references MUID:86070224
#accession A94281
                                                                                                                                                                                                                                                                                                                                                                                                                  #authors Abraham, J.A.; Mergia, A.; Whang, J.L.; Tumolo, A.; Friedman, J.; Hjerrild, K.A.; Gospodarowicz, D.; Fiddes, J.C.
#journal Science (1986) 233:545-548
#title Nucleotide sequence of a bovine clone encoding the anglogenic protein, basic fibroblast growth factor.
#cross-references MUID:86261806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Quinkler, W.; Maasberg, M.; Bernotat-Danielowski, S.; Luethe, N.; Sharma, H.S.; Schaper, W.

Bur. J. Blochem. (1989) 181:67-73
Isolation of heparin-binding growth factors from bovine, porcine and canine hearts.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #journal Proc. Natl. Acad. Sci. U.S.A. (1986) 83:7216-7220
#title Structural evidence that endothelial cell growth factor beta is the precursor of both endothelial cell growth factor alpha and acidic fibroblast growth factor.
#cross-references WUID:87016918
             #fitle Characterization of a bovine acidic FGF cDNA clone and its expression in brain and retina.
#cross-references MUID:89078619
                                                                                                                               ##residues 1.155 ##label ALT ##cross-references EMBL:X14032; NID:9322; PIDN:CAA32192.1; PID:9323 NCE $22065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #journal EMBO J. (1985) 4:1951-1956
#title Acidic fibroblast growth factor (FGF) from bovine brain:
#cross-references MuID:86055750
#accession A91010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Burgess, W.H.; Mehlman, T.; Marshak, D.R.; Fraser, B.A.;
'Maciag, T.
                                                                                                                                                                                                                                                                                                                                         ##residues 1-18 ##label PHI
##cross-references EMBL:X66446; NID:g411; PIDN:CAA47063.1; PID:g412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bohlen, P.; Esch, F.; Baird, A.; Gospodarowicz, D.
                                                                                                                                                                                                                            Philippe, J.M. submitted to the EMBL Data Library, May 1992 $22065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #crossion A244/,
#accession A244/,
##molecule_type protein
##molecule_type 2,'GE',5-155 ##label CRA
FEBS Lett. (1988) 242:41-46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              62-102 ##label ABR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 16-155 ##label GIM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##molecule_type protein
##residues 16-45 ##label QUI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #cross-references MUID:89231704
#accession S03953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##molecule_type protein
                                                                                                                                                                                                                                                                                                                ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A91010
                                                                                                                                                                                                                                                                                                                                                                                               A94290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B24663
                                                                                                    502661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    503953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A24477
```

S

```
##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ALTERNATE_NAMES
ORGANISM
                                                                                                                                                 ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CLASSIFICATION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tauthors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                COMMENT
                                                                                                                                                                                                                                                                                                                                                                                COMMENT
                                                                                                                                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
ENTRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #authors
Kuo, M.D.: Huang, S.S.; Huang, J.S.
#journal
J. Biol. Chem. (1990) 265:16455-16463
#title Acidic fibroblast growth factor receptor purified from bovine
liver is a novel protein tyrosine kinase.
#cross-references MUID:90375514
                                                                                                                                                          this form was designated acidic fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    neurones in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŏĘ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Philippe, J.M.; Renaud, F.; Desset, S.; Laurent, M.; Mallet, J.; Courtois, Y.; Edwards, J.B.
Biochem. Biophys. Res. Commun. (1992) 188:843-850
Cloning of two different 5' untranslated exons of bovine acidic fibroblast growth factor by the single strand ligation to single-stranded cDNA methodology.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##molecule_type protein
##residues 22-30,'X',32-38 ##label KU2
##residues this form was designated brain-derived growth factor A
                                                                                                                                                                                                                                                   growth
                                                            growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a form
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Disalvo, J.
J. Protein Chem. (1987) 6:163-171
Primary structure and mitogenic and anglogenic activities
brain-derived acidic fibroblast growth factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hill, C.E.; Belford, D.A.; Godovac-Zimmermann, J.; Hendry,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##molecule_type protein
##residues 11-26;28-50;53-110,'H',112,'NTY';134-155 ##label HIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##cross-references EMBL:X66446; NID:9411; PIDN:CAA47063.1; PID:9412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sasaki, H.; Hoshi, H.; Hong, Y.M.; Suzuki, T.; Kato, T.;
                                                                                                                                                                                                                                                   cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##molecule_type protein
##molecule_type protein
##residues 62-76,'X',78-86 ##label KUO
##residues this sequence is an amino-terminal fragment of
##note designated as brain-derived growth factor B
                                                          designated beta endothelial cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Thomas, K.A.; Gimenez-Gallego, G.; Rios-Candelore,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Brain Res. Dev. Brain Res. (1991) 63:13-19
Class 1 heparin binding growth factor promotes the
differentiation but not the survival of ciliary r
                                                                                                                                                                                                                                                                                                          authors Strydom, D.J.; Harper, J.W.; Lobb, R.R.

'journal Biochemistry (1986) 25:945-951

'title Amino acid sequence of bovine brain derived class heparin-binding growth factor.
                                                                                                                                                                                             ##molecule_type protein
##residues
22-155 ##label BU3
##note this form was designated alpha endothelial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   translated from GB/EMBL/DDBJ
                                                                                               #accession C25043
##molecule_type protein
##residues 16-155 ##label BU2
                                                                                                                                                                                                                                                                                                                                                                                                                                                            16-155 ##label STR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##molecule_type protein
##residues 16-155 ##label THO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1-18 ##label PH2
          ##molecule_type protein
##residues 2-155 ##label
##note this form was
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           *cross-references MUID:92164087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #cross-references MUID: 93075172
                                                                                factor
                                                                                                                                                                                                                                                                       factor
                                                                                                                                                                                                                                                                                                                                                                                                                  accession A24539
##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A61198
                                                                                                                                                                                A25043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A60884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A37892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A37892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               146024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A60884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##status
#accession
                                                                                                                                                                                      #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         *accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #accession
                                                                                                                                                                 ##note
                                                                                                                                                                                                                                                                                                              #authors
#journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #journal
                                                                                                                                                                                                                                                                                                                                                     #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #title
                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
```

```
##molecule_type protein
##residues
16-24;121-127;134-143 ##label SAS
##experimental_source heart
OWMENT The acidic and basic fibroblast growth factors are the major
endothelial-cell growth factors. Both are angigenic agents in
vivo and are potent mitogens for a variety of mesoderm-derived
cell types in vitro (although bEGF is 30-100 times more potent
than aFGF in stimulating the proliferation of normal diploid
cells) There are differences in the tissue distribution and
concentration of these two growth factors.

OWMENT There are some sequence similarities between residues 117-126 (a
region flanked by Lys-Lys dipeptides) and a number of
neuropeptides, including a gastrin-releasing peptide from the pig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #authors Risau, W.; Gautschi-Sova, P.; Boehlen, P.
#journal EMBO J. (1988) 7:959-962
#title Endothelial cell growth factors in embryonic and adult chick factors.
brain are related to human acidic fibroblast growth factor.
#accession S02639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ٦;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   bovine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             101 AMDIDGLLIGSQIPNEECLFLERLEEAATPAPNHYNTYISKKHAEKNWFVGLKKNGSCKR 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             81 AMDTDGLLYGSQTPNEECLFLERLEE-----NHYNTYISKKHAEKHWFVGLKKNGRSKL 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21 GNYKKPKLLYCSNGGYFLRILPDGTVDGTKDRSDQHIQLQLCAESIGEVYIKSTETGQFL 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        acidic fibroblast growth factor - chicken
endochelial cell growth factor
#formal_name Gallus gallus #common_name.chicken
03-Mar-1993 #sequence_revision 03-Mar-1993 #text_change
16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                             myocytes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Schnuerch, H.; Risau, W.
Development (1991) 111:1143-1154
Differentiating and mature neurons express the acid
fibroblast growth factor gene during chick neural
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ;
9
                                                 t growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             22-30,'X',32-44,'X',46-48 ##label RIS #superfamily fibroblast growth factor growth factor
Onodera, M.; Saito, T.; Aoyagi, S.
J. Biol. Chem. (1989) 264:1760f-17612
Purification of acidic fibroblast grow
heart and its localization in the ca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .,
.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 851; DB 1; L
Pred. No. 3.07e-166;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #type complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Note: remainder of annotations omitted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    135 GPRTHFGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #cross-references MUID:90008933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                *cross-references MUID:91347925
                                                                                                                                                          preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 65.5%;
Best Local Similarity 87.9%;
Matches 124; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A60130; S02639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          development
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A60130
```

셤

ö

ò

```
tross-references MUID:93246053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##residues
                                                                                                                                                                                                                                                                                                                                           CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ALTERNATE_NAMES
                                     ##status
                                                                                                                                                                                                                                                                        ##status
                  #accession
                                                                                                                                                                                                                                                       #accession
                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSIONS
                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM
                                                                                                                                                                                                                                                                                                                                                             SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #journal Biochem. Biophys. Res. Commun. (1998) 246:182-191
#title Primary structure of ovine fibroblast growth factor-1 deduced
by protein and cDNA analysis.
#cross-references MUID:98262939
                                                                    ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1-155 ##label GRI
protein is a potent mitogenic factor for NIH 3T3 fibroblasts
the absence of heparin.
#superfamily fibroblast growth factor
#length 155 #molecular-weight 17557 #checksum 8890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Borja, A.Z.; Meijers, C.; Zeller, R.
Bor. Biol. (1993) 157:110-118
Expression of alternatively spliced brof first coding exons
and antisense mRNAs during chicken embryogenesis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Grieb, T.W.; Ring, M.; Brown, E.; Palmer, C.; Belle, N.;
Donjerkovic, D.; Chang, H.; Yun, J.; Subramanian, R.;
Forozan, F.; Guo, Y.; Vertes, A.; Winkles, J.A.; Burgess,
                                                                                                                          81 AMDINGLLYGSQLPGEECLFLERLEE-----NHYNTYISKKHADKNWFVGLKKNGNSKL 134
                                                                                                                                                                                                 81 AMDTNGLLYGSQTPSEBCLFLERLEE-----NHYNTYISKKHAEKNWFIGLKKNGSSKL 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21 GNYKKPKLLYCSNGGYFLRILPDGRVDGTKDRSDQHIQLQLYAESIGEVYIKSTETGQFL 80
                                                                                                                                                                                                                                                                                                                                                                                                            #formal_name Ovis sp. #common_name sheep
17-Jun-1998 #sequence_revision 10-Jul-1998 #text_change
07-May-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A48834  #type complete
basic fibroblast growth factor - chicken
#formal_name Gallus gallus #common_name chicken
01-bec-1993 #sequence_revision 18-Nov-1994 #text_change
                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                        21 GNYKKPKLLYCSNGGHFLRILPDGKVDGTRDRSDQHIQLQLSAEDVGEVYIKSTASGQYL
#molecular-weight 17322 #checksum 7617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ģ
                                                                      ;
6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          64.6%; Score 840; DB 2; Length 155;
larity 86.5%; Pred. No. 1.21e-163;
Conservative 8; Mismatches 5; Indels
                               Length 155;
                                                                    Indels
                               Score 850; DB 2; Le
Pred. No. 5.29e-166;
6; Mismatches 7;
                                                                                                                                                                                                                                                                                                                                                        JW0055 #type complete
fiblobrast growth factor-1 - sheep
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           135 GPRTHYGQKAILFLPLPVSAD 155
                                                                                                                                                                                                                                                                    161 GPRTHYGQKAILFLPLPVSSD 181
                                 / Match 65.4%;
Local Similarity 86.5%;
nes 122; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A48834; S23636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        16-Jul-1999
#length 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity
les 122; Conserv
                                                                                                                                                                                                                                                                                                                                                        TITLE ALTERNATE NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSIONS
REFERENCE
#authors
#journal
                                                                                                                                                                                                                                                                                                                                           æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
DATE
                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SUMMARY
SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
```

g ò 엄 ò

```
#authors Abraham, J.A.; Mergia, A.; Whang, J.L.; Tumolo, A.; Friedman, J.; Hjerrild, K.A.; Gospodarowicz, D.; Fiddes, J.C.
#journal Science (1986) 233:545-548
#title Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fibroblast growth factor.
#cross-references MUD:86561806
#accession A24663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##residues 3-157 ##label ABR
##cross-references GB:M1440; NID:9163049; PIDN:AAA30518.1; PID:9163050
##experimental_source pituitary gland
**NCE A90924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GKBOB #type fragment
basic fibroblast growth factor precursor - bovine (fragment)
brGF; kidney-derived growth factor; prostatropin
#formal_name Bos prinigenius taurus #common_name cattle
13.Aug-1986_#sequence_revision 02-Jun-1995 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##residues 55-128 ##label MIT ##residues 95-128 ##label MIT ##cross references EMBL.X56804; NID:g62855; PIDN:CAA40139.1; PID:g62856 FICATION #superfamily fibroblary growth factor #length 189 #mclecular weight 20312 #checksum 8538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Milner, P.G.; Li, Y.S.; Hoffman, R.M.; Kodner, C.M.; Siegel, N.R.; Deuel, T.F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Fiddes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #journal Cold Spring Harb. Symp. Quant. Biol. (1986) 51:657-668
#title Human basic fibroblast growth factor: nucleotide sequence.
genomonic organization, and expression in mammalian cells.
#cross-references MUID:87217066
                                                                                                                                                                                                                                                      #authors Mitrani, E.; Gruenbaum, Y.; Shohat, H.; Ziv, T..
#journal Development (1990) 109:387-393
#title Fibroblast growth factor during mesoderm induction in the
early chick embryo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | | || : ::|| || |: ::|| || 86 VGEVYIKSTETGGYLAMDIDGLLYGSQTPNEECLFLERLEEAATPAPNHYNTYISKKHAE 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            43 LPALPDDGGGGAFPPGHFKDPKRLYCKNGGFFLRINPDGRVDGVREKSDPHIKLQLQAEE 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       103 RGVVSIKGVSANRFLAMKEDGRLLLALKCATEECFFFERLE----S-NNYNTYRSRKYSD 156
                                                                                                                                                      sequence extracted from NCBI backbone (NCBIN:131000,
NCBIP:131001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A24663; A32878; A33784; A61550; A61551; A60310; A61094; A01386; A60316; A22054; A24819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 189;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pred. No. 1.76e-76;
30; Mismatches 42; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           146 KNWFVGLKKNGSCKRGPRTHYGQKAILFLPLPVSS 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      157 -- WYVALKRTGQYKPGPKTGPGQKAILFLPMSAKS 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 464;
                                                               ##molecule_type nucleic acid
##residues 1-189 ##label BOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3-157 ##label AB2.
                                                                                                                           ##experimental_source embryo
                                 preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                        preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity 48.4%;
Matches 75; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 35.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10-Sep-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                          S23636
A48834
```

```
This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           29-33,118-121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                #accession
                                                                                                                                                                                                                                                                                                                                    #authors
                                                                                                                                                                                                                                                                                                                                                         #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7
                                                                                                                                                                                                                                                                                                                                                                           #title
                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         16-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    23-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             27-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURE
1-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ENTRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Proc. Natl. Acad. Sci. U.S.A. (1985) 82:6507-6511
Primary structure of bovine pituitary basic fibroblast growth factor (FGF) and comparison with the amino-terminal sequence of bovine brain acidic FMF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Esch, F.; Baird, A.; Ling, N.; Ueno, N.; Hill, F.; Denoroy, L.; Klepper, R.; Gospodarowicz, D.; Bohlen, P.; Guillemin,
                                                                                                                                                                                                                                    #authors Bertolini, J.; Hearn, M.T.W.
#journal Mol. Cell. Endocrinol. (1987) 51:187-199
#title Isolation, characterisation and tissue localisation of an N-terminal-truncated variant of fibroblast growth factor.
#cross-references MUID:87247652
#accession A61550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #authors Ucno, N.; Baird, A.; Esch, F.; Shimasaki, S.; Ling, N.; Guillemin, R. Guillemin, R. (1986) 16:135-145
#fournal Regul. Pept. (1986) 16:135-145
#title Purification and partial characterization of a mitogenic factor from bovine liver: structural homology with basic fibroblast growth factor.
#cross-references MUD:87119165
#accession A60310
                                                                                                                                                                                                                                                                                                                                                                                                           ##authors Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R.
#journal Mol. Cell. Endocrinol. (1987) 49:189-194
#title Isolation and partial characterization of basic fibroblast
growth factor from bovine testis.
#cross-references MUID:87162856
##accession A61551
                                                                                Gospodarowicz, D.; Baird, A.; Cheng, J.; Lui, G.M.; Esch,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #journal Endocrinology (1986) 118:82-90
#fitle Isolation of fibroblast growth factor from bovine adrenal gland: physicochemical and biological characterization.
#cross-references Wuld:86081530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         this form appears to be identical to the renal form
                  A novel 17 kD heparin-binding growth factor (HBGF-8) in bovine uterus: purification and N-terminal amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      the amino end of this form was blocked; the peptide composition matched what was thought to be the signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R. Biochen. Biophys. Res. Commun. (1986) 138:580-588 Isolation of an amino terminal extended form of basic fibroblast growth factor.
Commun. (1989) 165:1096-1103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12-25,27-35,'X',37-40 ##label GOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type protein
##residues 27-35,'X',37-41 ##label UE3
##experimental_source testes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##molecule_type protein
##residues
##experimental_source liver
A24819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##experimental_source adrenal gland
  Biochem. Biophys. Res.
                                                                                                                                                                                                                                                                                                                                                                  ##molecule_type protein
##residues 16-35 ##label BER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #cross-references MUID:86016731
#accession A01386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #cross-references MUID:86295737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##molecule_type protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bohlen, P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    seguence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      annotation
                                                                    sedneuce
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A60310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A61094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A6109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##note
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    contents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | journal
  #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #authors
                      #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             fitle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
```

```
#status predicted #label MATI.

#product basic fibroblast growth factor, pituitary gamma form #status experimental #label MATI?

#product basic fibroblast growth factor, pituitary alpha form #status experimental #label MATI?

#product basic fibroblast growth factor, pituitary alpha form #status predicted #label MATI.

#product basic fibroblast growth factor, pituitary short form #status predicted #label MATI.

#product basic fibroblast growth factor, hepatic form #status experimental #label MATI.

#modified_site blocked amino end (Ala) (in mature form pituitary gamma) (probably acetylated) #status
                                                                                                                            #authors Baird, A.; Esch, F.; Boehlen, P.; Ling, N.; Gospodarowicz, D.
#journal Regul. Pept. (1985) 12:201-213
#title Isolation and partial characterization of an endothelial cell
growth factor from the bovine kidney: homology with basic
fibroblast growth factor.
#cross-references MuID:86095426
#accession A60316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bohlen, P.; Baird, A.; Esch, F.; Ling, N.; Gospodarowicz, D. Proc. Natl. Acad. Sci. U.S.A. (1984) 81:5364-5368
Isolation and partial molecular characterization of pituitary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##molecule_type protein

##residues 12-26 ##label BOH

##residues 12-26 ##label BOH

The acidic and basic fibroblast growth factors are the major

endothelial-cell growth factors. Both are anglogenic agents in

vivo and are potent mitogens for a variety of mesoderm-derived

cell types in vitro (although bFGF is 30-100 times more potent

than aFGF in stimulating the proliferation of normal diploid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 proficin binds heparin more strongly than does aFGF. #superfamily fibroblast growth factor alternative splicing; angiogenesis; growth factor; heparin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #product basic fibroblast growth factor, uterine form
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       71 RGVVSIKGVCANRYLAMKEDGRLLASKCVTDECFFFERLE----S-NNYNTYRSRKYS- 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               26 VPSPAGARAQGTLLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLQISAES 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11 LPALPEDGGSGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQ%/JAEE 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 157;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 458; DB 1; Length 157
Pred. No. 3.99e-75;
29; Mismatches 42; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S06185 #type complete
basic fibroblast growth factor - sheep
                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type protein
##residues 27-35,'X',37-43 ##label BAI
##experimental_source kidney
MCE A22034
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                124 -SWYVALKRIGQYKLGPKTGPGQKAILFLPMSAKS 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | :|:|:||: | | | ||:| ||||||||||:: |
| KNWFVGLKKNGSCKRGPRTHYGQKAILFLPLPVSS 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #checksum 1115
##experimental_source pituitary gland
**NCE A60316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             fibroblast growth factor #cross-references MUID:84298139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               experimenta]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              binding; mitogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           35.2%;
Best Local Similarity 49.0%;
Matches 76; Conserved.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            prostatropin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #length 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A22054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
ALTERNATE_NAMES
```

œ

```
##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #status
                                                                                                                                                                                                                                                                                                                                         #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #accession
                                                                                                                  #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #accession
                                      #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #journal
#title
                                                                                                                                                                                                                         #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                          #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #authors
                      tauthors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #journal
    REFERENCE
                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                  Simpson, R.J.; Moritz, R.L.; Lloyd, C.J.; Fabri, L.J.; Nice, E.C.; Rubira, M.R.; Burgess, A.W.
E.C.; Rubira, M.R.; Burgess, A.W.
FEBS Lett. (1987) 224:128-132
Primary structure of ovine pitultary basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              basic fibroblast growth factor precursor, 22.5K form - human bFGF; fibroblast growth factor 2; prostatic growth factor;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type mRNA
##residues 1-210 ##label PRA
##cross-references GB:J04513; NID:g183083; PIDN:AAA52531.1; PID:g459811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #authors Prats, H.; Kaghad, M.; Prats, A.C.; Klagsbrun, M.; Lelias, J.M.; Liauzun, P.; Chalon, P.; Tauber, J.P.; Amalric, F.; Smith, J.A.; Caput, D. Proc. Natl. Acad. Sci. U.S.A. (1989) 86:1836-1840 #title High molecular mass forms of basic fibroblast growth factor are initiated by alternative CUG codons.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1-114 ##label SHI
authors translated the codon GGA for residue 47 as Ala
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      fibroblast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      41 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               75 AMKEDGRLLASKCVTDECFFFERLE----S-NNYNTYRSRKYS--SWYVALKRTGQYKL 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A32398; A61537; A26642; B32878; S00297; A54316; B54316; A33624; A25824; B24243; B24301; S42242; B55784; I52267;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 prostatropin
basic fibroblast growth factor, 18K form
#formal_name Homo sapiens #common_name man
31-Jul-1989 #sequence_revision 31-Dec-1993 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                    #sequence_revision 10-Sep-1999 #text_change
#formal_name Ovis orientalis aries, Ovis ammon aries
#common_name domestic sheep
10-Sep-1999 #sequence_revision 10-Sep-1999 #text_char
                                                                                                                                                                                                                                                                                                                                                        #journal Growth Factors (1991) 4:277-287
#title Functional characterization of the human basic growth factor gene promoter.
#cross-references MUID:92110035
                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 146;
                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 453; DB 1; Length 146
Pred. No. 5.35e-74;
23; Mismatches 35; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Shibata, F.; Baird, A.; Florkiewicz, R.Z.
                                                                                                                                                                                                                                                                          i-146 ##label SIM
#superfamily fibroblast growth factor
growth factor; heparin binding; mitogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #type complete
                                                                                                                                                                                                                  #cross-references MUID:88055577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         127 GPKTGPGQKAILFLPMSAKS 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 161 GPRTHYGQKAILFLPLPVSS 180
                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 34.8%;
Best Local Similarity 52.9%;
Matches 74; Conservative
                                                       10-Sep-1999
S00185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   16-Jul-1999
                                                                                                                                                                                                                                                   ##molecule_type protein
                                                                                                                                                                                                    Factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            846253
                                                                                                                                                                                                                                   800185
                                                                                                  S00185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A32398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A61537
                                                                                                                                                                                                                                                                            ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ALTERNATE_NAMES
                                                                                                                                                                                                                                                                                                CLASSIFICATION
                                                                                                                                                                                                                                         #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12
                                                                                                                    #authors
                                                                                                                                                           #journal
                                                                                                                                                                                                                                                                                                                                                          18-22
107-110
                                                                           ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ESSIONS
                                                                                                REFERENCE
                                                                                                                                                                              #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CONTAINS
ORGANISM
DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                              MMARY
                                                                                                                                                                                                                                                                                                                                       FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
                                      DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
```

Ļ

```
Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Friedman, J.; Gospodarowicz, D.; Fiddes, J.C.
EMBO J. (1986) 5:2523-2528
Human basic fibroblast growth factor: nucleotide sequence and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1-155 ##label AB2 the codon GAA for residue 108 as Gly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Feige, J.J.; Bradley, J.D.; Fryburg, K.; Farris, J.; Cousens,
                                                                                                                                                                                               ##molecule_type mRNA
##residues 56-210 ##label KUR
##cross-references GB:M27968; NID:9182562; PIDN:AAA52448.1; PID:9182563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           the authors translated the codon GAA for residue 108 as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #authors Shinoyama, Y.; Gotoh, M.; Ino, Y.; Sakamoto, M.; Kato, K.;
#linoyama, Y.; Gotoh, M.; Ino, Y.; Sakamoto, M.; Kato, K.;
#finoshinoshi, S.
#journal Jpn. J. Cancer Res. (1991) 82:1263-1270
Characterization of high-molecular-mass forms of basic fibroblast growth factor produced by hepatocellular carcinoma cells: possible involvement of basic fibroblast growth factor in hepatocarcinogenesis.
#cross-references MUID:92091228
#accession A54316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Story, M.T.; Esch, F.; Shimasaki, S.; Sasse, J.; Jacobs, S.C.; Lawson, R.K.
Blochem. Blophys. Res. Commun. (1987) 142:702-709
Amino-terminal sequence of a large form of basic fibroblast growth factor isolated from human benign prostatic hyperplastic tissue.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     L.C.; Barr, P.J.; Baird, A.
J. Cell Biol. (1989) 109:3105-3114
Differential effects of heparin, fibronectin, and laminin of
the phosphorylation of basic fibroblast growth factor by
protein kinase C and the catalytic subunit of protein
                                                                                                                                                                                                                                                                                                                                             Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Fiddes
                                                                                                                                                                                                                                                                                                                                                                                                             #journal Cold Spring Harb. Symp. Quant. Biol. (1986) 51:657-668
#title Human basic fibroblast growth factor: nucleotide sequence,
genomic organization, and expression in mammalian cells.
#cross-references MUID:87217066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##molecule_type protein ##residues /Xx',86-88,'X',90-91,'X',93-95 ##label SH3 ##residues /Xx',86-88,'X',90-91,'X',93-95 ##label SH3 ##experimental_source C-Li21 hepatocellular carcinoma cell line sequence extracted from NCBI backbone (NCBIP:71595) cession B54316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ##molecule_type protein
##residues /xxx',19,'x',21-29 ##label SH2
##note sequence extracted from NCBI backbone (NCBIP:71594)
Kurokawa, T.; Sasada, R.; Iwane, M.; Igarashi, K.
FEBS Lett. (1987) 213:189-194
Cloning and expression of cDNA encoding human basic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 not compared with conceptual translation
                                                                                                   fibroblast growth factor. #cross-references MUID:87162468 #accession A26642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##molecule_type protein
##residues 57-210 ##label FEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    56-210 ##label ABR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              genomic organization. #cross-references MUID:87053817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       kinase A. cross-references MUID:90078343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##molecule_type mRNA
##residues 56-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ##molecule_type DNA
##residues 1-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A25824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A33624
                                                                                                                                                                                                                                                                                                             A90924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S00297
```

US-09-121-017B-5.rpr

```
#accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #authors
#journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #title
                                                                                                                                                                                                                                                                                                                          65-210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                             FEATURE
1-210
                                                                                                                                                                                                                                                                                                                                                                    82-86
                                                                                                                                                                                                                                                                                                                                                                                                            SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #journal Biochem. Biophys. Res. Commun. (1992) 187:1227-1231
#title Reverse transcription with nested polymerase chain reaction shows expression of basic fibroblast growth factor transcripts in human granulosa and cumulus cells from in vitro fertilisation patients.
                                                                                                                           Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A. Blochem. Blophys. Res. Commun. (1986) 135:441-548 Human brain-derived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitogenic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #authors Patry, V.; Bugler, B.; Amalric, F.; Prome, J.C.; Prats, H.
#journal FEBS Lett. (1994) 349:23-28
#title Purification and characterization of the 210-amino acid
recombinant basic fibroblast growth factor form (FGF-2).
#cross-references MoID:94320639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pantoliano, M.W.; Horlick, R.A.; Springer, B.A.; Van Dyk, D.E.; Tobery, T.; Wetmore, D.R.; Lear, J.D.; Nahapetian, A.T.; Bradley, J.D.; Sisk, W.P.
Biochemistry (1994) 33:10229-10248
Multivalent ligand-receptor binding interactions in the fibroblast growth factor system produce a cooperative growth factor and heparin mechanism for receptor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Watson, R.; Anthony, F.; Pickett, M.; Lambden, P.; Masson, G.M.; Thomas, E.J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sommer, A.; Brewer, M.T.; Thompson, R.C.; Moscatelli, D.;
Presta, M.; Rifkin, D.B.
Biochem. Biophys. Res. Commun. (1987) 144:543-550
A form of human basic fibroblast growth factor with an
                                                                                                                                                                                                                                                                                                                                                           Gautschi, P.; Frater-Schroder, M.; Bohlen, P. FEBS Lett. (1986) 204:203-207
Partial molecular characterization of endothelial cell mitogens from human brain: acidic and basic fibroblast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##residues ##residues ##reress_references EMBL:MJ7599; NID:9183086; PIDN:AAA52534.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##status preliminary; translated from GB/EMBL/DDBJ #molecule_type mRNA #fresidues 95-182 ##label RES ##cross-references GB:847380; NID:9256535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##molecule_type protein
##residues 65-88,/X',90-98,/X',100 ##label GAU
                                                                                                                                                                                                                                                                   ##experimental_source granulosa_cells
NCE S46253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                extended amino terminus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##molecule_type protein ##residues 54-71 ##label PAN
                                     ##molecule_type protein
##residues 57-77 ##label STO
                                                                             ##experimental_source prostate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PID:9183087
#cross-references MUID:87156686
#accession A25824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #cross-references MUID:87213238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             dimerization.
*cross-references MUID:94347757
*accession B55784
                                                                                                                                                                                                                                  *cross-references MUID:86186784 *accession B24243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #cross-references MUID:86275260
                                                                                                                                                                                                                                                                                                                                                                                                                                                      growth factors.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##molecule_type mRNA
                                                                                                                                                                                                                   activities.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           542242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    152267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B24301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S42242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               152267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #accession
                                                                                                                                                                                                                                                      #accession
                                                                                                                             #authors
#journal
#title
                                                                                                                                                                                                                                                                                                                                                                                 #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #journal
#title
                                                                                                                                                                                                                                                                                                                                                                  #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #authors
                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
```

```
Shimasaki, S.; Emoto, N.; Koba, A.; Mercado, M.; Shibata, F.; Cooksey, K.; Baird, A.; Ling, N. Biochem. Biochem. Esochem. Complementary DNA cloning and sequencing of rat ovarian basic fibroblast growth factor and tissue distribution study of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            El-Husseini, A.E.D.; Paterson, J.A.; Myal, Y.; Shlu, R.P.C.
Blochlin. Blophys. Acta (1992) 1131:314-316
PCR detection of the rat brain basic fibroblast growth factor
(bFGF) mRNA containing a unique 3' untranslated region.
                                                                                                                                                                                                                                                    #superfamily fibroblast growth factor alternative initiators; angiogenesis; growth factor; heparin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##nclecule_type mRNA
##residues 1-154 ##label SHI
##cross-references GB:M22427; NID:g204285; PIDN:AAA41216.1; PID:g204286
ENCE S00876 ---- N - Tastachi R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##residues 1-154 ##label KUR
##cross-references EMBL:X07285; NID:956203; PIDN:CAA30265.1; PID:956204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             64 LPALPEDGGSGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEE 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             124 RGVVSIKGVCANRYLAMKEDGRLLASKCVTDECFFFERLE----S-NNYNTYRSRRYT- 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Kurokawa, T.; Seno, M.; Igarashi, K.
Nucleic Acids Res. (1988) 16:5201
Nucleotide sequence of rat basic fibroblast growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26 VPSPAGARAQGTLLDANYKRPKLLYCSNGGHFLRILPDGTVDGTRDKSDQHIQLQLSAES 85
                                                                                                                                                                                                                                                                                                                                                                   #product basic fibroblast growth factor, 22.5K form
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #formal_name Rattus norvegicus #common_name Norway rat 21-May-1990 #sequence_revision 21-May-1990 #text_change
                                                                                                                                                                                                                                                                                                                                                                                           #status predicted #label MA2\
#product basic fibroblast growth factor, 18K form
#status predicted #label MAT\
#region heparin binding #status predicted\
#region heparin binding #status predicted
#length 210 #molecular-weight 22623 #checksum 3610
                                                                                  coli
                                                                               recombinant gene expressed in Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A31674 #type complete
basic fibroblast growth factor precursor - rat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 451; DB 2; Length 210; Pred. No. 1.51e-73;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        30; Mismatches 42; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            177 -SWYVALKRTGQYKLGSKTGPGQKAILFLPMSAKS 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             :|:|:|| | | |::| |||||||||||:: |
146 KNWFVGLKKNGSCKRGPRTHYGQKAILFLPLPVSS 180
                                                             39-53;65-88 ##label PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A31674; S00876; S24309
                                                                                                                                                                                                                                                                                                            binding; mitogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #cross-references MUID:89061721
#accession A31674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tcross-references MUID:88262516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                34.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity 48.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        75; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        16-Jul-1999
                       ##molecule_type protein
##residues 39-53;65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     its mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##molecule_type mRNA
846253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       800876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ALTERNATE_NAMES
ORGANISM
```

```
#description
                                                                                                                                              #submission
                                                                                                                                                                                                                 ##status
                                                                                                                                                                                                  #accession
                                                                                                                            #authors
                                                                                         ACCESSIONS
REFERENCE
                                     ORGANISM
 TITLE
                                                     DATE
                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Dev. Biol. (1990) 138:454-463
Isolation of CDNAs encoding four mouse FGF family members and
characterization of their expression patterns during
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ##residues__11-154 ##label HEB
##cross-references GB:M30644; NID:g193296; PIDN:AAA37621.1; PID:g309239
FICATION #superfamily fibroblast growth factor #ctor #elength 134 #molecular-weight 17153 #checksum 2906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .;
                                                                                       ##cross-references EMBL:X61697; NID:956143; PIDN:CAA43863.1; PID:956144
FICATION #superfamily fibroblast growth factor
DS growth factor
                                                                                                                                                                                                                                                                                      ë
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hebert, J.M.; Basilico, C.; Goldfarb, M.; Haub, O.; Martin
                                                                                                                                                           #domain signal sequence #status predicted #label SIG\
#product basic fibroblast growth factor #status
predicted #label MAT
#length 154 #molecular-weight 17139 #checksum 3026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        41 ANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      83 AMKEDGRLLASKCVTEECFFFERLE----S-NNYNTYRSRKYS--SWYVALKRTGQYKL 134
                                                                                                                                                                                                                                                                                                                                                                                            78 ANRYLAMKEDGRLLASKCVTEECFFFERLE----S-NNYNTYRSRKYS--SWYVALKRT 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               23 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYL 82
                                                                                                                                                                                                                                                                                                                                                           36 GTLLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTE 95
                                                                                                                                                                                                                                                                                                                       18 GAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVC 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                        ώ
                                                                                                                                                                                                                                                 Score 449; DB 2; Length 154;
Pred. No. 4.26e-73;
26; Mismatches 37; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              35; Indels
                                 ##status preliminary; translation not shown ##molecule_type mRNA ##residues 35-154 ##label ELH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 445; DB 2;
Pred. No. 3.39e-72;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            24; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           130 GQYKLGSKTGPGQKAILFLPMSAKS 154
#cross-references MUID:92329546
#accession S24309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          embryogenesis.
#cross-references MUID:90201563
#accession C37360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GSKTGPGQKAILFLPMSAKS 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##molecule_type mRNA
##residnes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity 52.1%;
Matches 73; Conservative
                                                                                                                                                                                                                                                 Query Match 34.5%;
Best Local Similarity 51.0%;
Matches 74; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C37360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A37360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        G.R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CLASSIFICATION
                                                                                                         CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                              10 - 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUMMARY
                                                                                                                                                                                                                 SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                            å
                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ô
```

#type fragment

531622

15

RESULT ENTRY

```
ä
                                                                                                                                                               Rusewitt, D.F.; Sabourin, C.L.K.; Budge, C.L.; Ley, R.D. submitted to the EMBL Data Library, September 1992 (Characterization of cDNA encoding basic fibroblast growth factor of the marsuplal Monodelphis domestica. 831622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           28 GAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGIREKSDPNIKLQLQAEERGVVSIKGVC 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
basic fibroblast growth factor - short-tailed opossum
  (Monodelphis domestica) (fragment)
# formal_name Monodelphis domestica
20-Feb-1995 #sequence_revision 20-Feb-1995 #text_change
12-Apr-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .;
6
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 164;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      38; Indels
                                                                                                                                                                                                                                                                                                                                                        ##cross-references EMBL:215154
CLASSIFICATION #Superfamily fibroblast growth factor
SUMMARY #length 164 #checksum 5156
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 439; DB 2; I
Pred. No. 7.56e-71;
25; Mismatches 38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Search completed: Tue Aug 29 15:48:11 2000 Job time : 35 secs.
                                                                                                                                                                                                                                                                                                                                  1-164 ##label KUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          140 GOYKLGSKTGPGQKAILFLPMSAKS 164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      156 GSCKRGPRTHYGQKAILFLPLPVSS 180
                                                                                                                                                                                                                                                                                      preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity 51.0%;
Matches 74; Conservative
                                                                                                                                                                                                                                                                                                                 ##molecule_type DNA
##residues 1-1
                                                                                                                       531622
```

(TM)	*****
	******
( <u></u> ]	******
	***************************************
	*******
'' '-' 	*******
'	*******
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	*******
	*****

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

protein - protein database search, using Smith-Waterman algorithm MPsrch pp

Tue Aug 29 15:45:20 2000; MasPar time 7.94 Seconds 706.264 Million cell updates/sec ratular output not generated. on:

>US-09-121-017B-5 (1-181) from USO91ZIUI7B.pep 1300 1 MSRGAGRVQCTLQALVFLGV......PRTHYGQKAILFLPLPVSSD 181 Description: Perfect Score: Title:

Scoring table: Sequence:

PAM 150 Gap 11

85661 seqs, 30989116 residues

Searched:

Minimum Match 0% Listing first 45 summaries Post-processing:

Database:

Statistics:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution. Mean 44.306; Variance 68.544; scale 0.646

## SUMMARIES

Pred. No.	2.55e-206	9.03e-202	5.73e-201	5.00e-198	6.96e-188	1.29e-187	1.67e-86	5.62e-85	1.05e-83	3.40e-83	1.09e-82	1.14e-81	3.78e-80	4.12e-77	4.52e-72	2.64e-49	6.97e-47	6.97e-47	6.97e-47	4.45e-42	6.94e - 41	1.07e-39	1.26e-36
	GROWTH	FACTOR	FACTOR	FACTOR	FACTOR	H FACT	H FACT	H FACT	H FACT														
u	INDING	VATING	VATING	VATING	VATING	I GROWTH	I GROWTH	I GROWTH	I GROWTH														
Description	HEPARIN-BINDING	GLIA-ACTIVATING	GLIA-ACTIVATING	GLIA-ACTIVATING	GLIA-ACTIVATING	FIBROBLAST	FIBROBLAST	FIBROBLAST	FIBROBLAST														
QI	FGF1 HUMAN	FGF1_MESAU	FGF1_MOUSE	FGF1_PIG	FGF1_BOVIN	FGF1_CHICK	FGF2_CHICK	FGF2_BOVIN	FGF2_SHEEP	FGF2_HUMAN	FGF2_RAT	FGF2_MOUSE	FGF2_MONDO	FGF2_XENLA	FGF2_RABIT	FGF9_XENLA	FGF9_RAT	FGF9_HUMAN	FGF9_MOUSE	FGFG_HUMAN	FGFG_RAT	FGF6_MOUSE	FGF3_CHICK
80	1	_	-	-	-		<del>, ,</del>	_	н	-	-		-	<del>, -</del>	<del>, ,</del>		-	1		-	-	-	-
Length	155	155	155	152	155	155	158	155	155	155	154	154	156	155	137	209	208	208	208	207	207	208	220
& Query Match	70.8	69.5	69.3	68.4	65.5	65.4	35.7	35.2	34.8	34.7	34.5	34.2	33.8	32.8	31.3	24.2	23.5	23.5	23.5	21.9	21.5	21.2	20.5
Score	920	903	006	883	851	820	464	458	453	451	449	445	439	427	407	315	305	305	305	285	280	275	262
Rejult No.		7	m	4	S	9	7	ω	6	10	11	12	13	14	15	16	17	18	19	20	21	22	23

factor."; Biochem. Biophys. Res. Commun. 164:1121-1129(1989).

[5] SEQUENCE FROM N.A.

2.39e-33	3.46e-32	3.46e-32	5.89e-32	5.89e-32	1.71e-31	1.00e-31	1.71e-31	1.71e-31	2.91e-31	2.91e-31	2.91e-31	4.95e-31	4.95e-31	1.43e - 30	2.43e - 30	2.43e - 30	4.13e-30	2.80e-28	4.73e-28	4.73e-28	7.99e-28
FACT	H FA	FACT	FACT	FACT	H FA	FACT	NE P	FACT	FACT	FACT	FACT	FACT	NE P	H FA	FACT						
GROWTH	E GROWI	GROWTH	GROWTH	GROWTH	E GROWI	GROWTH	-ONCOGE	GROWTH	GROWTH	GROWTH	GROWTH	GROWTH	-ONCOGE	E GROWI	GROWTH						
'IBROBLAST GROWTH	KERATINOCYTE GROWTH FA	FIBROBLAST	TIBROBLAST GROWTH	FIBROBLAST GROWTH	KERATINOCYTE GROWTH	PIBROBLAST GROWTH FACT	NT-2 PROTO-ONCOGENE P	TBROBLAST	FIBROBLAST	TBROBLAST	FIBROBLAST	IBROBLAST GROWTH	NT-2 PROTO-ONCOGENE	KERATINOCYTE GROWTH FA	FIBROBLAST	FIBROBLAST	FIBROBLAST	TBROBLAST	FIBROBLAST	FIBROBLAST	FIBROBLAST
щ	_	_	_	FI		_	Н	-	_	_	FI	_	_			_	_	_	_		_
FGF3_XENLA	FGF7_SHEEP	FGF6_HUMAN	FGFA_HUMAN	FGFA_RAT	FGF7_HUMAN	FGFB_HUMAN	FGF3_HUMAN	FGFE_MOUSE	FGFE_HUMAN	FGF5_MOUSE	FGF5_RAT	FGFA_XENLA	FGF3_MOUSE	FGF7_MOUSE	FGFA_MOUSE	FGFB_MOUSE	FGF5_HUMAN	FGFC_HUMAN	FGFB_XENLA	FGF4_BOVIN	FGF4_CHICK
-	-	-	-	Н	Н	٦	-	-	-	-	-	-	Н	٦	~	н	-4	-	-	-	-
237	194	208	208	215	194	225	239	247	247	264	366	187	245	194	209	225	268	243	192	206	194
19.1	18.7	18.7	18.6	18.6	18.5	18.5	18.5	18.5	18.4	18.4	18.4	18.3	18.3	18.2	18.1	18.1	18.0	17.4	17.3	17.3	17.2
248	243	243	242	242	240	241	240	240	239	239	239	238	238	236	235	235	234	226	225	225	224
24	22	56	27	28	58	30	31	32	33	34	32	36	37	38	39	40	41	42	43	44	45

## ALIGNMENTS

acidic fibroblast

```
2AFG; 15-OCT-95.
1AXM; 22-APR-98.
2AXM; 22-APR-98.
1RML; 11-NOV-98.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A24243.
A24301.
A24662.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A24820.
A26386.
A33665.
S18217.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1
16
2
24
113
155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   THAN DOES BFGF.
                                                                                                                                       97107535.
                                                                                                                                                                                                                                                                                                                                                          98387896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A26386; A
A33665; A
S18217; S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A24301;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A24662;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A24820;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     D-structure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BINDING
BINDING
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                          MEDLINE:
                                                                                                                                       MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; I
EMBL; I
EMBL; EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PIR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PIR;
PIR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PIR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PDB;
PDB;
PDB;
     SO THE THE XX THE TRANSPORT OF THE PROPERTY OF THE THE TRANSPORT OF THE 
                                                                                                                                                                                                                                                                                                                                                                                                             Zhao X.M., Yeoh T.K., Hiebert M., Frist W.H., Miller G.G.; The expression of acidic fibroblast growth factor (heparin-binding growth factor-1) and cytokine genes in human cardiac allografts and T cells.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gautschi P., Frater-Schroeder M., Boehlen P.;
"Partial molecular characterization of endothelial cell mitogens from
human brain: acidic and basic fibroblast growth factors.";
                      Wang W.P., Quick D., Balcerzak S.P., Needleman S.W., Chiu I.M.; "Cloning and sequence analysis of the human acidic fibroblast growth factor gene and its preservation in leukemia patients."; Oncogene 6:1521-1529(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE OF 16-155.
MEDLINE: 86296647.
Harper J.W., Strydom D.J., Lobb R.R.;
"Human class 1 heparin-binding growth factor: structure and homology to bovine acidic brain fibroblast growth factor.";
Biochemistry 25:4097-4103(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Blaber M., Disalvo J., Thomas K.A.;
"X-ray crystal structure of human acidic fibroblast growth factor.";
Biochemistry 35:2086-2094(1996).
                                                                                                                                                                                                                                                                      "An acidic fibroblast growth factor protein generated by alternate splicing acts like an antagonist."; J. Exp. Med. 175:1073-1080(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.; "Human brain-derived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitogenic activities."; Biochem. Biophys. Res. Commun. 135:541-548(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE OF 1-40 FROM N.A.
MEDLINE; 90365758.
Crumley G., Dionne C.A., Jaye M.;
The gene for human acidic fibroblast growth factor encodes two upstream exons alternatively spliced to the first coding exon.";
Biochem. Biophys. Res. Commun. 171:7-13(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            growth factor.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.; "The complete amino acid sequence of human brain-derived acidic fibroblast growth factor."; Biochem. Biophys. Res. Commun. 138:611-617(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRÚCTURE BY NMR OF 24-155.
MEDLIRE, 94358885.
Pineda-Lucena A., Jimenez M.A., Nieto J.L., Santoro J., Rico M.
Gimenez-Gallego G.;
                                                                                                                                                                                                                      Li Y.L., Kha H., Golden J.A., Migchielsen A.A.J., Goetzl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE; 87048871.
Gautschi-Sova P., Mueller T., Boehlen P.;
"Amino acid sequence of human acidic fibroblast g
Biochem. Biophys. Res. Commun. 140:874-880(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          K-RAY CRYSTALLOGRAPHY (2.0 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Transplantation 56:1177-1182(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Lett. 204:203-207(1986)
                                                                                                                                                                                                                                                                                                                                                                              OF 1-154 FROM N.A. 94069734.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 16-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE; 86295741.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE; 96194129.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE OF 16-47. MEDLINE; 86186784.
                                                                                                                                                        SEQUENCE FROM N.A. MEDLINE; 92202857.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      86275260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE OF
MEDLINE; 862
                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE OF
                                                                                                                                                                                                                                               Furck E.J.;
                                                                                                                                                                                            MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RRAKER KRIKE KRIKE
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                    PFAM; PF00167; FGF; 1.
PRINTS; PR00265; ILLHBGF.
PRINTS; PR00263; HBGFFGF.
PROSTIE; PR00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding; Acetylation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS, FAMILY
                                                                                                                                                   ب
:
                                                                                                                                                                                                  ŗ
                                                                                                                                                Pineda-Lucena A., Jimenez M.A., Lozano R.M., Nieto J.L., Santoro
                                                                                                                                                               Rico M., Gimenez-Gallego G.; "Three-dimensional structure of acidic fibroblast growth fac solution: effects of binding to a heparin functional analog. J. Mol. Biol. 264:162-178(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACETYLATION.
HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
F586E8BFB09F1580 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HEPARIN-BINDING GROWTH
  human
"1H-NMR assignment and solution structure of hum growth factor activated by inositol hexasulfate. J. Mol. Biol. 242:81-98(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            M60515; AAA51672.1; ...
M60516; AAA51673.1; ...
M23087; AAA52638.1; ...
M23086; AAA52638.1; ...
S67291; AAB29057.1; ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           M30492; AAA52446.1; -. M30490; AAA52446.1; JOINED. M30491; AAA52446.1; JOINED.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; M13361; AAA79245.1; -. EMBL; X51943; CAA36206.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                155
155
2
2
2
116
17460 M
                                                                                                                                                                                                                                                                                               STRUCTURE BY NMR OF 25-155.
                                                                                                 STRUCTURE BY NMR OF 24-155.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AA46661.1;
```

US-09-121-017B-5.rsp

```
ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGENTS
IN
                                                                                                                                                                                                                                                                                                                                                                                                                    -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
PIR; A60721; A60721.
PISSP; D60520; 2AXM.
PRAM; PF00167; FGF, 1.
PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFFGF.
PROSTE; PS00247; HBGFFGF.
PROSTE; PS00247; HBGFFGF.
PROSTE; PS00247; BBGFFGF.
PROSTE; PS00247; BBGFFGF.
PROSPEP.

1 15 BY SIMILARITY.
                                                                                                                  98 QYLAMDTDGLLYGSQTPNEECLFLEERLEEAATPAPNHYNTYISKKHAEKNWFVGLKKNGS 157
                                                                                                                                                                                                                                                            01-FEB-1994 (Rel. 28, Created)
01-FEB-1994 (Rel. 28, Last sequence update)
15-JUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST
                                                                                                    78 OYLAMDIDGLLYGSQTPNEECLFLERLEE-----NHYNTYISKKHAEKNWFVGLKKNGS 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY THAN DOES BFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         78 QYLAMDIDGLLYGSQIPNEECLFLERLEE-----NHYNTYTSKKHAEKNWFVGLKKNGS 131
                                                                 18 LLDANYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 97
                                                   LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       18 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETG 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                             Gaps
                                                                                                                                                                                                                                                                                                                                         Mesocricetus auratus (Golden hamster).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BY SIMILARITY.

HEPARIN BINDING GROWTH FACTOR 1.

HEPARIN (POTENTIAL).

HEPARIN (POTENTIAL).

41E5EC760E412CC5 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 903; DB 1; Length 155; Pred. No. 9.03e-202;
  Length 155;
                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4; Indels
70.8%; Score 920; DB 1; L. 93.8%; Pred. No. 2.55e-206; ative 1; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No. 9.03e-2; Mismatches
                                                                                                                                                                                                                                      Æ
                                                                                                                                                                                                                                      155
                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           132 CKRGPRTHYGQKAILFLPLPVSSD 155
                                                                                                                                                                      158 CKRGPRTHYGQKAILFLPLPVSSD 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   16 155 HE
24 28 HE
113 116 HE
155 AA; 17403 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     69.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 larity 91.7%;
Conservative
                            Conservative
                                                                                                                                                                                                                                      STANDARD;
                                                                                                                                                                                                                                                                                                                  GROWTH FACTOR) (AFGF).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SUBUNIT: MONOMER
              Local Similarity
nes 135; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity
les 132; Conser
                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                FGF1 OR FGF-1.
                                                                                                                                                                                                                                                                                                                                                                                 Mesocricetus.
                                                                                                                                                                                                                      LT 2
FGF1_MESAU
P34004;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BINDING
                                                    18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Loc
Matches
                         Matches
                                                                                                                                                                                                                         RESULT
                                                                                                                                                                                                                                                                                       E ME LE LE S
                                                                                                     셤
                                                                                                                               ò
                                                                                                                                                        ద
                                                                                                                                                                                 ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             윱
                                                                             ö
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the FMBL outstation the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by und for commercial entities requires a license agreement (See http://www.is)-sib.ch/announce/or send an email to license@lsb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                and its expression in the adult and developing mouse brain.";
J. Biol. Chem. 271:30263-30271(1996).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                01-JUL-1989 (Rel. 11, Created)
01-JUL-1989 (Rel. 11, Last sequence update)
15-JUL-1999 (Rel. 38, Last annotation update)
HEPRAIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST GROWTH FACTOR) (AFGF).
                                                                                                                                                                                                                                                                                                                                                                                                                Hebert J.M., Basilico C., Goldfarb M., Haub O., Martin G.R.; "Isolation of cDNAs encoding four mouse FGF family members and characterization of their expression patterns during embryogenesis."; Dev. Biol. 138:454-463(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -!- SUBUNIT: MONOMER.
-!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "Characterization of the 1B promoter of fibroblast growth factor 1
                                                                                                                                                                      Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi,
Mammalia, Eutheria, Rodentia, Sciurognathi, Muridae, Murinae, Mus.
                                                                                                                                                                                                                                                          MEDLINE; 89240051.
Goodrich S., Yan G.C., Bahrenburg K., Mansson P.E.;
"The nucleotide sequence of rat heparin binding growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Alam K.Y., Frostholm A., Hackshaw K.V., Evans J.E., Rotter A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE; 97128312.
Madial F., Hackshaw K.V., Chiu I.M.;
"Cloning and characterization of the mouse Fgf-1 gene.";
Gene 179:231-236(1996).
                                                                                                                                                        Mus musculus (Mouse), and Rattus norvegicus (Rat).
                   155 AA.
                                                                                                                                                                                                                                                                                                                              Nucleic Acids Res. 17:2867-2867(1989)
                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; X14232; CAA32448.1; -.
EMBL; M30641; AAA37618.1; -.
EMBL; U36459; AAC52969.1; -.
EMBL; U36457; AAC52969.1; JOINED.
EMBL; U36488; AAC52969.1; JOINED.
EMBL; U67610; AAC52907.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
SPECIES-MOUSE; STRAIN-BALB/C;
MEDLINE; 97094746;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PF00167; FGF; 1.
                   STANDARD;
                                                                                                                                    FGF1 OR FGF-1 OR FGFA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MGD; MGI:95515; FGF1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S04147; S04147.
D37360; D37360.
                                                                                                                                                                                                           [1]
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      P05230; 2AXM
                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE; 90201563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SPECIES-MOUSE
                                                                                                                                                                                                                                                                                                                                                                                    SPECIES-MOUSE
   r 3
FGF1_MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PFAM; PF(
PRINTS; E
                                                                                                                                                                                                                                                                                                                (HBGF-1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HSSP;
```

ï

```
SEQUENCE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FGF1_BOVIN
P03968;
                                                                                                                                                                                                                                                                       NON_TER
SEQUENCE
                                                                                                                                                                                                                              CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE;
                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                    CHAIN
CHAIN
BINDING
                                                                                                                                                                                                    BINDING
                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TRESCRIPTION OF THE STATE OF TH
  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EUI. J. Biochem. 181:67-73(1989).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIGGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-FEB-1996 (Rel. 33, Last sequence update)
15-JUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR I PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST GROWTH FACTOR) (ALPHA-ENDOTHELIAL CELL GROWTH FACTOR)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Quinkler W., Maasberg M., Bernotat-Danielowski S., Luethe N.,
Sharma H.S., Schaper W.;
"Isolation of heparin-binding growth factors from bovine, porcine and
                                                                                                                                                                                                                                                                                                                                                                                                              -i- SUBUNIT: MONOMER.
-i- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
                                                                                                                                                                                                                                                                                                                    81 AMDTEGLLYGSQTPNEECLFLERLEE-----NHYNTYTSKKHAEKNWFVGLKKNGSCKR 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -! - SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                            21 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESAGEVYIKGTETGQYL 80
                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FGFI OR FGF-1.
Sus scrofa (Pig).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Schmidt M., Sharma H.S., Schott R.J., Schaper W., Schmidt M., Sharma H.S., Schott R.J., Schaper W., "Amplification and sequencing of mRNA encoding acidic fibroblast growth factor (aFGF) from porcine heart."; Biochem. Biophys. Res. Commun. 180:853-859(1991).
                                                                                                                                                                                                                                                    ;
9
                                                                                       HEPARIN-BINDING GROWTH FACTOR
                                                                                                                                                                                                    Score 900; DB 1; Length 155; Pred. No. 5.73e-201; 3; Mismatches 2; Indels
PROSITE; PS00247; HBGF_RGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
PROPEP 1 15
                                                                                16 155 HEPARIN-BINDING GROWTH FAC
24 28 HEPARIN (POTENTIAL).
113 116 HEPARIN (POTENTIAL).
155 AA; 17418 MW; 8880E4FF0FBA4161 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                152 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-FEB-1991 (Rel. 17, Created)
01-FEB-1996 (Rel. 33, Last sequ
15-JUL-1999 (Rel. 38, Last anno
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           135 GPRTHYGQKAILFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     161 GPRTHYGQKAILFLPLPVSSD 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; X60317; CAA42869.1; -.
                                                                                                                                                                                                    Match 69.2%;
Local Similarity 92.2%;
les 130; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  THAN DOES BFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE; 92062117.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE; 89231704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  canine hearts.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           [2]
SEQUENCE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FRAGMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               II 4
FGF1_PIG
P20002;
                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                       Query Match
                                                                                                             BINDING
                                                                                                                                    BINDING
                                                                                       CHAIN
                                                                                                                                                                                                                              Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DR TTT TS
                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
```

```
Halley C., Courtois Y., Laurent M.; "Nucleotide sequence of bovine acidic fibroblast growth factor cDNA."; Nucleic Acids Res. 16:10913-10913(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        23-OCT-1986 (Rel. 02, Created)
01-MAR-1989 (Rel. 10, Last sequence update)
15-UUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HEGF-1) (ACIDIC FIBROBLAST
GROWTH FACTOR) (ARGF) (PROSTATROPIN) (ENDOTHELIAL CELL GROWTH FACTOR
BETA AND ALPHA CHAINS) (ACIDIC EYE-DERIVED GROWTH FACTOR II) (EDGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    78 QYLAMDISGLLYGSQIPSEECLFLERLEE-----NHYNIYISKKHAEKNWFVGLKKNGS 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98 QYLAMDTDGLLYGSQTPNEECLFLERLEEAATPAPNHYNTYISKKHAEKNWFVGLKKNGS 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Burgess W.H., Mehlman T., Marshak.D.R., Fraser B.A., Maciag T.; "Structural evidence that endothelial cell growth factor beta is the precursor of both endothelial cell growth factor alpha and acidic fibroblast growth factor. N. 83:7216-7220(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  18 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETG 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alterio J., Halley C., Brou C., Soussi T., Courtois Y., Laurent M.; "Characterization of a bovine acidic FGF cDNA clone and its expression in brain and retina."; FEBS Lett. 242:41-46(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                6; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bos taurus (Bovine).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
                                                                                                                                                                                      ENDOTHELIAL CELL GROWTH FACTOR ALPHA. HEPARIN (POTENTIAL). HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PIR; S03954; S03954.
HSSP; P05230; ZAXM.
PFAM; PF00167; FGF; 1.
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitoger; Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                                                                                                           Length 152;
                                                                                                                                       | 15 | HEPARIN-BINDING GROWTH FACTC | >152 | ENDOTHELIAL CELL GROWTH FACT | 28 | HEPARIN (POTENTIAL). | 116 | HEPARIN (POTENTIAL). | 31 | C -> S (IN REF. 2). | 39 | R -> Y (IN REF. 2). | 152 | 152 | A4; | 17103 MW; | AE85380A92F9ABF4 CRC64; |
                                                                                                                                                                                                                                                                                                                                                                                                                                                4; Indels
                                                                                                                                                                                                                                                                                                                                                                                             Score 889; DB 1; I
Pred. No. 5.00e-198;
                                                                                                                                                                                                                                                                                                                                                                                                                                                2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             155 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OR FGF-1 OR FGFA OR HBGF-1 OR AFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         132 CKRGPRTHYGQKAILFLPLPV 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cch 68.4%;
il Similarity 91.5%;
129; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity
                                                                                                                                            1
16
22
24
113
31
31
152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OF 2-155.
87016918.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TISSUE=RETINA;
MEDLINE; 89078619.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE OF 2-155.
MEDLINE; 87026586.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE; 89083506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IISSUE-RETINA
```

S

```
PRINTS; PR00262; ILIHBGF.
PRINTS; PR00263; HBGFGF.
PROSITE; PR00247; HBGF_FGF. 1.
Growth factor; Mitogen; Vascularization; Heparin-binding; Acetylation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SHILLHILLHISH HILLHILHILHISH SANYKKPKLIYCSAGSVGEVYIKSTETGQYL 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              81 AMDTDGLLYGSQTPNEECLFLERLEE-----NHYNTYISKKHAEKHWFVGLKKNGRSKL 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21 GNYKKPKLLYCSNGGYFLRILPDGTVDGTKDRSDQHIQLQLCAESIGEVYIKSTETGCFL 80
                                                                                                                                                                                                                                                                      ENDOTHELIAL CELL GROWTH FACTOR BETA. HERARIN-BINDING GROWTH FACTOR 1. ENDOTHELIAL CELL GROWTH FACTOR ALPHA. ACETYLATION.
HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   17493 MW; F636641F189F9BFD CRC64;
                                                                                                                                                                                                                                                                                                                                                               HEPARIN (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 851; DB 1; L
Pred. No. 6.96e-188;
6; Mismatches 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 6
ID FGF1_CHICK STANDARD; PRT; 155 AA
AC P19536;
DT 01-FEB-1991 (Rel. 17, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GPRTHFGQKALLFLPLPVSSD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GPRTHYGOKAILFLPLPVSSD 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    65.5%;
87.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         124; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                     49
60
73
82
85
85
                                                                       PIR, B24663; B24663.
PTR, S02102; S02102.
PDB, 1BAR, 31-OCT-93.
PDB, 1AFC; 31-OCT-93.
PTAM, PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               98
100
107
111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                     A25043;
                         B25043;
                                        C25043;
                                                          A24477;
                                                                                                                                                                                                                                     3D-structure
PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                          MOD_RES
BINDING
                                                                                                                                                                                                                                                                                                                                                             BINDING
                                                                                                                                                                                                                                                                                                                                                                                                TURN
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HELIX
STRAND
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAND
STRAND
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HELIX
STRAND
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAND
HELIX
                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRAND
                                                                                                                                                                                                                                                                                         CHAIN
                                                                                                                                                                                                                                                                          CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
     PIR;
PIR;
PIR;
PIR;
PIR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     161
         윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            쉽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Science 251:90-93(1991).

-i - FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
-i - VIVO AND ARE POTENT MITOGENS OR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sharma H.S., Schaper W.; Isolation of heparin-binding growth factors from bovine, porcine and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SUBUNIT: MONOMER.
MISCELLANBOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
THAN DOES BFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
MEDLINE; 91095983.
Shu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
HAU B.T., Rees D.C.;
"Three-dimensional structures of acidic and basic fibroblast growth
                                                                                                                         MEDLINE: 86070224.
Gimenez-Gallego G., Rodkey J., Bennett C., Rios-Candelore M.,
Disalvo J., Thomas K.;
"Brain-derived acidic fibroblast growth factor: complete amino acid
Crabb J.W., Armes L.G., Carr S.A., Johnson C.M., Roberts G.D., Bordoll R.S., McKeehan W.L.; Complete primary structure of prostatropin, a prostate epithelial cell growth factor.":

Blochemistry 25:4988-4993(1986).
                                                                                                                                                                                                                                                                                                                                                                                                             Abraham J.A., Mergia A., Whang J.L., Tumolo A., Friedman J., Hjerrild K.A., Gospodarowicz D., Fiddes J.C.; "Nucleotide sequence of a bovine clone encoding the anglogenic protein, basic fibroblast growth factor.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE OF 16-45.
MEDLINE; 89231704.
Quinkler W., Maasberg M., Bernotat-Danielowski S., Luethe N.,
                                                                                                                                                                                                                                                                      MEDLINE; 86055750.

Achien P., Esch F., Baird A., Gospodarowicz D.;

Acidic fibroblast growth factor (FGF) from bovine brain:
amino-terminal sequence and comparison with basic FGF.";

EMBO J. 4:1951-1956(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE OF 1-18 FROM N.A.
Philippe J.M., Renaud F., Desset S., Laurent M.;
Submitted (JUL-1992) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                      SEQUENCE OF 16-44, AND COMPOSITION. MEDLINE; 86055750.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eur. J. Biochem. 181:67-73(1989)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     , X13221; CAA31610.1; -: X14032; CAA32192.1; -: M35608; AAA30517.1; -: M97660; AAA30563.1; -: M97661; AAA30564.1; -: M97661; AAA30564.1; -:
                                                                                                                                                                                                                   Science 230:1385-1388(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL; M13439; AAA30516.1; -.
                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE OF 16-56 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Science 233:545-548(1986).
                                                                                                                                                                                                    sequence and homologies."
                                                                                                              SEQUENCE OF 16-155.
                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE; 86261806.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A01385; GKBOA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                canine hearts."
```

factors.

EMBL; EMBL;

EMBL;

EMBL;

ä

Gaps

..

Length 155; Indels

```
FGF2_BOVIN
                                                                    FGF2_CHICK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BINDING
                                                                                                                                                                                                                       Gallus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CHAIN
                161
                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license dispendent (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                    EMBO J. 7:559-962(1988).

-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITCHESIS IN THE TISSUE DISTRIBUTION AND VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.

-!- SUBUNIT: MONOMER.

-!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY THAN DOES BEGE.

-!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
15-JUL-1999 (Rel. 38, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST
GROWTH FACTOR) (AFGF) (ALPHA-ENDOTHELIAL CELL GROWTH FACTOR).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa; Chórdata; Craniata; Vertebrata; Euteleostomi;
Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       81 AMDTNGLLYGSQLPGEECLFLERLEE-----NHYNTYISKKHADKNWFVGLKKNGNSKL 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21 GNYKKPKLLYCSNGGHFLRILPDGKVDGTRDRSDQHIQLQLSAEDVGEVYIKSTASGQYL 80
                                                                                                                                                                                                                                                                                   MEDLINE; 88296438.
Risau W., Gautschi-Sova P., Boehlen P.;
"Endothelial cell growth factors in embryonic and adult chick brain are related to human acidic fibroblast growth factor.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ENDOTHELIAL CELL GROWTH FACTOR ALPHA. HEPARIN (POTENTIAL).

#EPARIN (POTENTIAL).

#EDB70545E2B4365 CRC64;
                                                                                                                                     MEDLINE; 91347925.
Schnurch H., Risau W.;
"Differentiating and mature neurons express the acidic fibroblast
growth factor gene during chick neural development.";
Development 111:1143-1154(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         R EMBL; S63263; AAB19629.1; -
R EMBL; U31863; AAA80310.1; -
R EMBL; S63261; AAA19942.1; -
R EMBL; S63261; AAD19942.1; -
R EMBL; S602530; 2AXM.
PRAW; PF00167; FGF; 1.
PRINTS; PR00262; IIIHBGF.
R PRINTS; PR00263; HBGFFGF.
R PROSTE; PS00247; HBGF FGF; 1.
R PROSTE; PS00247; HBGF FGF; 1.
R PROPEP 1 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HEPARIN-BINDING GROWTH FACTOR 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7; Indels
                                                                                                                                                                                                                                 Martin G.R., Han J.K.;
Submitted (JUL-1995) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 850; DB 1; Le Pred. No. 1.29e-187;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         135 GPRTHYGQKAILFLPLPVSAD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     17322 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 65.4%;
Best Local Similarity 86.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          122; Conservative
                                                      gallus (Chicken).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       113 1
155 AA;
                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                        SEQUENCE OF 22-48.
                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                           FGF1 OR FGF-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BINDING
                                                         Gallus
                                                                                                                                                                                                                                                                              DR
WW KW
FT FT SO
FT FT SO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EmbL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Borja A.Z., Zeller R., Meijers C.;
"Expression of alternatively spliced bFGF first coding exons and antisense mRNAs during chicken embryogenesis.";
bev. Biol. 157:110-118(1993).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIGGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS OR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -!- SUBUNIT: MONOMER.
-!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   72 RGVVSIKGVSANRFLAMKEDGRLLALKCATEECFFFERLE----S-NNYNTYRSRKYSD 125
                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
                                                                                                                                                                                                01-FEB-1996 (Rel. 33, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12 LPALPDDGGGGAFPPGHFKDPKRLYCKNGGFFLKINPDGRVDGVREKSDPHIKLQLQAEE 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               26 VPSPAGARAQGTLLDANYKKPKLLYCSNGGHFLRILPDGTVDGTKDRSDQHIQLQLSAES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HEPARIN-BINDING GROWTH FACTOR 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HSSP; P09038; IBFF.
PRAM; PF00167; FGF.
PRINTS; PR00262; ILIHBGF.
PRINTS; PR00263; HBGFFGF.
PRINTS; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        42; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HEPARIN (POTENTIAL).
7B69B684C17F1816 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 464; DB 1; 1
Pred. No. 1.67e-86;
30; Mismatches 42.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      126 -- WYVALKRIGQYKPGPKIGPGQKAILFLPMSAKS 158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     158 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    155 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    30 34 HI
119 122 HI
158 AA; 17374 MW;
EMBL; M95707; AAA48617.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity 48.4%;
Matches 75; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STANDARD;
                                                                                                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                       Gallus gallus (Chicken).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12
158
                                                                                                                                                                                                                                                                                                                            GROWTH FACTOR) (BFGF).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        93246053.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 [1]
SEQUENCE FROM N.A.
MEDLINE; 93246053.
                                                                                                                                                                                                                                                                                                                                                           FGF2 OR FGF-2
```

'n

US-09-121-017B-5.rsp

```
SUBUNIT: MONOMER.
MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3D-structure.
PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CHAIN
SITE
SITE
BINDING
BINDING
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HELIX
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAND
HELIX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HELIX
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HELIX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TURN
  FFF WEEN DON'S DON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Science 251:90-93(1991).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
                  23-OCT-1986 (Rel. 02, Created)
23-OCT-1986 (Rel. 02, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTATROPIN) [CONTAINS: KIDNEY-DERIVED GROWTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE; 86016731.
Esch F., Baird A., Ling N., Ueno N., Hill F., Denoroy L., Klepper R., Gospodarowicz D., Boehlen P., Guillemin R.;
"Primary structure of bovine pituitary basic fibroblast growth factor (FGF) and comparison with the amino-terminal sequence of bovine brain acidic FGF.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Baird A., Esch F., Boehlen P., Ling N., Gospodarowicz D.; "Isolation and partial characterization of an endothelial cell growth factor from the bovine kidney: homology with basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE; 87119165.
Geno N., Baird A., Esch F., Shimasaki S., Ling N., Guillemin R.;
"Purification and partial characterization of a mitogenic factor from
bovine liver: structural homology with basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
MEDLINE: 87217066.
Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.;
Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.;
Human basic fibroblast growth factor: nucleotide sequence, genomic organization, and expression in mammalian cells.";
Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
MEDLINE; 91095983.
MEDLINE; 9001ya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
Hsu B.T., Rees D.C.;
Three-dimensional structures of acidic and basic fibroblast growth
                                                                                                                                                                                         Bos taurus (Bovine).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE; 86295737.
Ueno N., Baird A., Esch F., Ling N., Guillemin R.;
"Isolation of an amino terminal extended form of basic fibroblast
                                                                                                                                                                                                                                                                                                                                                              Abraham J.A., Mergia A., Whang J.L., Tumolo A., Friedman J., Hjerrild K.A., Gospodarowicz D., Fiddes J.C.; "Nucleotide sequence of a bovine clone encoding the anglogenic protein, basic fibroblast growth factor.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Blochem. Blophys. Res. Commun. 138:580-588(1986)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Proc. Natl. Acad. Sci. U.S.A. 82:6507-6511(1985)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Regul. Pept. 16:135-145(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Regul. Pept. 12:201-213(1985)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Science 233:545-548(1986)
                                                                                                                                                                                                                                                                         Bovidae; Bovinae; Bos.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE OF 25-41.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE; 86095426.
                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A. MEDLINE; 86261806.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 21-40.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE OF 1-9
                                                                                                                                                                     FGF2 OR FGF-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TISSUE~KIDNEY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LISSUE-KIDNEY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                factors.
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bloinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a licenseetagreement (see http://www.isb-sib.ch/announce/or send an email to licenseetablesh.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RGVVSIKGVCANRYLAMKEDGRLLASKCVTDECFFFERLE----S-NNYNTYRSRKYS- 121
SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9 LPALPEDGGSGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQL;AEE 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KIDNEY-DERIVED GROWTH FACTOR.
CELL ATTACHMENT SITE (POTENTIAL).
CELL ATTACHMENT SITE (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HEPARIN-BINDING GROWTH FACTOR 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 155;
                                                                                                                                                                                                                                                                                                                                                                         PRINTS; PRO0262; ILLHBGF.
PRINTS: PRO0247; HBGFFGF. 1.
PROSITS: PSO0247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               42; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17250 MW; BE6CE70FA6107129 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HEPARIN (POTENTIAL). HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 458; DB 1; 1
Pred. No. 5.62e-85;
29; Mismatches 42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -SWYVALKRTGQYKLGPKTGPGQKAILFLPMSAKS 155
                                                                                                                                                                                                                                    EMBL; M13440; AAA30518.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 35.2%;
Best Local Similarity 49.0%;
Matches 76; Conservative
                                                                                                                                                                                                                                                                              PIR; A24819; A24819.
PIR; A32878; A32878.
PDB; 1BAS; 31-OCT-93.
PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    155 AA;
                                                                                                                                                                                                                                                             A24663; GKBOB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
```

œ

ö

ROCCOSEE

```
||:| ||||||||: |
| GPRTHYGQKAILFLPLPVSS 180
               136 GPKTGPGQKAILFLPMSAKS 155
                                                                                                                                                                                                                                                                                                                                                genomic organization.
                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A. MEDLINE; 87217066.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM 'N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A. MEDLINE; 87213238.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A. MEDLINE; 87162468.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             86186784.
                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE; .89184522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE OF 10-39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          87162468
                                                                                                                                                                                                                                                                                         MEDLINE; 87053817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    [8]
SEQUENCE OF 2-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   terminus.
                                                                                                                                                                                                    FGF2 OR FGFB
                                                                                             FGF2_HUMAN
P09038;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE;
                                                                                     10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 amino
                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                     AGENTS
IN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -i- SUBUNIT: MONOMER.
-i- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AMKEDGRLLASKCVTDECFFFERLE----S-NNYNTYRSRKYS--SWYVALKRTGQYKL 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-FEB-1991 (Rel. 17, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AFGF.
SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             24 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVCANRYL 83
                                                                                                                                                                                  Ovis aries (Sheep).
Sukaryota: Metazooa: Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia: Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
Bovidae; Caprinae; Ovis:
                                                                                                                                                                                                                                                                                                                                                                                                FEBS Lett. 224:128-132(1987).

-!- FUNCTION: THE HEPARIA-BINDING GROWTH FACTORS ARE ANGLOGENIC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES:
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                              MEDLINE; 88055577.
Simpson R.J., Moritz R.L., Lloyd C.J., Fabri L.J., Nice E.C., Rubira M.R., Burgess A.W.; "Primary structure of ovine pituitary basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HEPARIN-BINDING GROWTH FACTOR 2. CELL ATTACHNENT SITE (POTENTIAL). CELL ATTACHNENT SITE (POTENTIAL). HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PIR; S00185; S00185.
HSSP; P09038; IBFF.
HSSP; P00107; F0F.
PROUGOT: F0F.
PRINTS; PRO0263; HBGFFGF.
PRINTS; PS00247; HBGF_FGF.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 453; DB 1; Length 155,
Pred. No. 1.05e-83;
                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
Sutton R., Ward W.G., Raphael K.A., Cam G.R.;
Submitted (SEP-1994) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B5F2364BA610606D CRC64;
155 AA.
                                                                                                                                                         GROWTH FACTOR) (BFGF) (PROSTATROPIN).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17280 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; L36136; AAA31519.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   34.8%;
Similarity 52.9%;
74; Conservative
                                                                      STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sest Local Similarity
                                                                                                                                                                                                                                                                                                      [2]
SEQUENCE OF 9-155.
                                                                                                                                                                        FGF2 OR FGF-2
                                                       T 9
FGF2 SHEEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SO FITTERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
```

學事務
報告
程
程
程
程
程
程
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是
是

ò

ò

```
MEDLINE; 86275260.
Gautschi P., Frater-Schroeder M., Boehlen P.;
"Partial moleqular characterization of endothelial cell mitogens from
human brain: acidic and basic fibroblast growth factors.";
FEBS Lett. 204:203-207(1986).
                                                                  01-NOV-1988 (Rel. 09, Created)
01-NOV-1988 (Rel. 09, Last sequence update)
01-NOV-1997 (Rel. 35, Last annotation update)
11-NOV-1997 (Rel. 35, Last annotation update)
GROWTH EPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTATROPIN)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.; "Human basic fibroblast growth factor: nucleotide sequence, genomic organization, and expression in mammalian cells.";
                                                                                                                                                                                                                                                                                                                                         Homo saplens (Human).
Edkaryota: Metazooa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.; "Human brain-derived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitogenic activities."; Biochem. Biophys. Res. Commun. 135:541-548(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'A form of human basic fibroblast growth factor with an extended
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Kurokawa T., Sasada R., Iwane M., Igarashi K.;
"Cloning and expression of cDNA encoding human basic fibroblast
growth factor.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Abraham J.A., Whang J.L., Tumolo A., Mergia A., Friedman J., Gospodarowicz D., Fiddes J.C.; "Human basic fibroblast growth factor: nucleotide sequence and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sommer A., Brewer M.T., Thompson R.C., Moscatelli D., Presta
Riffin D.B.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Caput D.;
"High molecular mass forms of basic fibroblast growth factor initiated by alternative CUG codons.";
Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Prats H., Kaghad M., Prats A.C., Klagsbrun M., Lelias J.M.,
Liauzun P., Chalon P., Tauber J.P., Amalric F., Smith J.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   amıno terminus.";
Biochem. Biophys. Res. Commun. 144:543-550(1987).
155 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEBS Lett. 213:189-194(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBO J. 5:2523-2528(1986)
· STANDARD;
```

```
31-JAN-94.
30-APR-94.
08-NOV-96.
                                                                   B32878.
                                                                                                   2FGF; 15-APR-92
4FGF; 15-JUL-93
                                                                                                                                                                                       16-JUN-97
                                                                                                                                                                                                                                                        96-VON-80
                 A26642.
B24243.
B24301.
                                                                                                                                                                                                                                                                      MIM; 134920; -. PFAM; PF00167; FGF;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity
                                                                   B32878; 1
                                                                                                                                                                                                                                                                                                                                                                          3D-structure.
PROPEP
CHAIN
SITE
SITE
BINDING
BINDING 1
STRAND
                 A26642;
B24243;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        75;
                                                                                                                                                                                     1BFF;
1BFG;
2BFH;
                                                     B24301
                                                                                                                                                                                                                                        1BLA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TURN
STRAND
TURN
STRAND
TURN
HELIX
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TURN
STRAND
HELIX
STRAND
TURN
STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Loc
Matches
PIR;
PIR;
PIR;
PIR;
PIR;
PDB;
PDB;
PDB;
                                                                                                                                                                                                                                      PDB;
PDB;
MIM;
                                                                                                                                                                                       PDB;
PDB;
PDB;
 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its way non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE; 97040521.

MOY F.J., Seddon A.P., Boehlen P., Powers R.;

"High-resolution solution structure of basic fibroblast growth factor determined by multidimensional heteronuclear magnetic resonance spectroscopy.";

Blochemistry 35:1352-13561(1996).

IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITO. THERE ARE DIFFERRICES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
              Story M.T., Esch F., Shimasaki S., Sasse J., Jacobs S.C., Lawson R.K., "Aminor-terminal sequence of a large form of basic fibroblast growth factor isolated from human benjan prostatic hyperplastic tissue."; Bjochem. Biophys. Res. Commun. 142:702-709(1987).
                                                                                                                                                                                                                                     MEDLINE; 94004464.
Eriksson A.E., Cousens L.S., Matthews B.W.;
Refinement of the structure of human basic fibroblast growth factor at L.6-A resolution and analysis of presumed heparin binding sites by selenate substitution.";
                                                                                                                                                                                                                                                                                                                                                                      Zhang J., Cousens L.S., Barr P.J., Sprang S.R.; "Three-dimensional structure of human basic fibroblast growth factor, a structural homolog of interleukin 1 beta."; Proc. Natl. Acad. Sci. U.S.A. 88:3446-3451(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Three-dimensional structures of acidic and basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).
MEDLINE; 9121151.
AGO H., Kitagawa Y., Fujishima A., Matsuura Y., Katsube Y.;
"Crystal structure of basic fibroblast growth factor at 1.6-A
                                                                                                                                 Eriksson A.E., Cousens L.S., Weaver L.H., Matthews B.W., "Three-dimensional structure of human basic fibroblast growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE; 91095983.
Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.
Hsu B.T., Rees D.C.;
                                                                                                                                                                                   Proc. Natl. Acad. Sci. U.S.A. 88:3441-3445(1991).
                                                                                                                                                                                                                                                                                                                                                          X-RAY CRYSTALLOGRAPHY (1.8 ANGSTROMS). MEDLINE; 91195368.
                                                                                                                                                                                                                       X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS).
                                                                                                 X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAA28028.1; -. CAA28029.1; -. AAA52448.1; -. AAA52533.1; ALT_INIT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; M17599; AAA52534.1; ALT_INIT
                                                                                                                                                                                                                                                                                                                          Protein Sci. 2:1274-1284(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Biochem. 110:360-363(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Science 251:90-93(1991).
MEDLINE; 87156686.
                                                                                                                   MEDLINE; 91195367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRUCTURE BY NMR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          X04433;
M27968;
J04513;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           X04431;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               X04432;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     resolution.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            factors.
                                                                                                                                                                   factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL;
EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL;
```

```
69 RGVVSIKGVCANRYLAMKEDGRLLASKCVTDECFFFERLE----S-NNYNTYRSRKYT- 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9 LPALPEDGGSGAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEE 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .
œ
                                                                                                            HEPARIN-BINDING GROWTH FACTOR 2. CELL ATTACHNENT SITE (POTENTIAL). CELL ATTACHMENT SITE (POTENTIAL). HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 155:
PRINTS; PR00262; IIIHBGF.
PRINTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    17254 MW; BE6CE13373007129 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 451; DB 1;
Pred. No. 3.40e-83;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            122 -SWYVALKRIGQYKLGSKIGPGQKAILFLPMSAKS 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 30; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        34.7%; Score 451;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         larity 48.4%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
```

RESULT

```
10 154 HEP
26 30 HEP
115 118 HEF
154 AA; 17139 MW; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; M30644; AAA37621.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PIR; C37360; C37360.
HSSP; P09038; 1BFF.
MGD; MGI:95516; FGF2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          90201563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FGF2 OR FGF-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            12
FGF2_MOUSE
P15655:
                                                                                                                                  SEQUENCE
                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE;
                                                                                              BINDING
                                                                                                                BINDING
                                                   PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PFAM;
                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
SETTTES
                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss institute of Bioinformatics and the EMBL outstation. the European Bioinformatics institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE; 93239546.
El-Husseini A.E.D., Paterson J.A., Myal Y., Shiu R.P.C.;
El-Husseini A.E.D., Paterson J.A., Myal Y., Shiu R.P.C.;
El-Husseini A.E.D., In the rat brain basic fibroblast growth factor (bFGF) mRNA containing a unique 3' untranslated region.";
Biochim. Biophys, Acta 1131:314-316(1992).
I-FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENES FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
                                                                                                                                                                                                                                                                                                          STRAIN-SPRAGUE-DAWLEY; TISSUE-OVARY;
MEDLINE; 89061721.
Shinmasaki S., EmcLo N., Koba A., Mercado M., Shibata F.,
Cooksey K., Baird A., Ling N.;
"Complementary DNA cloning and sequencing of rat ovarian basic
fibroblast growth factor and tissue distribution study of its mRNA.";
Biochem. Biophys. Res. Commun. 157:256-263(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -i- TISSUE SPECIFICITY: FOUND IN ALL THE TISSUES EXAMINED.
-i- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                            Rattus norvegicus (Rat).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                            01-JAN-1990 (Rel. 13, Last sequence update)
15-UL-1998 (Rel. 35, Last annotation update)
15-BROBIN SINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSIATROPIN).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Passumarth! K.B.S., Jin Y., Cattini P.A.; "Cloning of the rat fibroblast growth factor-2 promoter region and its response to mitogenic stimuli in glioma C6 cells."; J. Neurochem. 68:898-908(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Kurokawa T., Seno M., Igarashi K.;
"Nucleotide sequence of rat basic fibroblast growth factor cDNA.";
Nucleic Acids Res. 16:5201-5201(1988).
                                                       154 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE OF 1-28 FROM N.A. STRAIN-SPRAGUE-DAWLEY; TISSUE-TESTIS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE OF 35-154 FROM N.A. STRAIN-SPRAGUE-DAWLEY; TISSUE-BRAIN;
                                                                                            01-JAN-1990 (Rel. 13, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; M22427; AAA41210.1; -. EMBL; X07285; CAA30265.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PIR; S00876; S00876.
PIR; A31674; A31674.
HSSP; P09038; IBFF.
PFAM; PP00167; FGF: 1.
PRINTS; PR00262; ILLHBGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL; U78079; AAC53225.1;
EMBL; X61697; CAA43863.1;
                                                     STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE; 97200905.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE; 88262516.
                                                                                                                                                                                                                                                                       [1]
SEQUENCE FROM N.A.
                                                                                                                                                                                          OR FGF-2
                                                   FGF2_RAT P13109;
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUBUNIT: MONOMER.
MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                78 ANRYLAMKEDGRLLASKCVTEECFFFERLE----S-NNYNTYRSRKYS--SWYVALKRT 129
                                                                                                                                                                                                                                                                                                                                                                                                              01-APR-1990 (Rel. 14, Created)
01-APR-1990 (Rel. 14, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (PROSTATROPIN)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY
                                                                                                                                                                                                                                                                                                                                                                           18 GAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVC 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mus musculus (Mouse).
Sukaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                 .;
6
                                                                                               ς.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HEPARIN-BINDING GROWTH FACTOR 2.
                                                                                                                                                                                                                                              Match 34.5%; Score 449; DB 1; Length 154; Local Similarity 51.0%; Pred. No. 1.09e-82; es 74; Conservative 26; Mismatches 37; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGF_FGF: 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
PROPEP 1 9 HEPARIN-BINDING GROWTH FACTO!
PROSITE; PS00247; HBGF_FGF; 1.
Growth factor; Mitogen; Vascularization; Heparin-binding.
                                                                                                                                                                                        1A0F14FF423D8403 CRC64;
                                                                                               HEPARIN-BINDING GROWTH
                                                                                                                         HEPARIN (POTENTIAL)
HEPARIN (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               154 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                156 GSCKRGPRTHYGQKAILFLPLPVSS 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         130 GOYKLGSKTGPGQKAILFLPMSAKS 154
```

ö

à

```
74; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                              FGF2_XENLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BINDING
       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                   A PART OF THE PROPERTY OF THE 
                                                       용
                                                                                                      ò
                                                                                                                                                        g
                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     entities requires a license agreement (See http://www.isb-sib.ch/announce/
or send an email to license@isb-sib.ch).
                                                                                                                                                          ä;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CONCENTRATION OF THESE 2 GROWTH FACTORS.
SUBUNIT: MONOMER.
MISCELLANBOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                 41 ANYKRPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYL 100
                                                                                                                                                                                                                                                                                                                                    83 AMKEDGRLLASKCVTEECFFFERLE----S-NNYNTYRSRKYS--SWYVALKRTGQYKL 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                    23 GHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYL 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-FEB-1996 (Rel. 33, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
01-NV-1997 (Rel. 35, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTATROPIN).
                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE: 94296558.

KUSGWITT D.F., Sabourin C.L.K., Sherburn T.E., Ley R.D.;

KUSGWITT D.F., Sabourin C.L.K., Sherburn T.E., Ley R.D.;

Characterization of cDNa encoding basic fibroblast growth factor the marsupial Monodelphis domestica.";

DNA Cell Biol. 13:549-554(1994).

-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AG IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Monodelphis domestica (Short-tailed grey opossum).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Metatheria; Didelphimorphia; Didelphidae; Monodelphis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; 2131.

R PERM; PRO0165; FGF: 1.

R PRINTS; PR00262; ILLHBGF.

DR PRINTS; PR00263; HBGFEGF.

DR PROSITE; PS00247; HBGFEGF.

DR PROSITE; PS00247; HBGFEGF.

TWO Growth factor; Mitogen; Vascularization; Heparin-binding.

FT PROPEP 10 156 HEPARIN-BINDING GROWTH FACTOR 2.

CHAIN 10 156 HEPARIN-BINDING GROWTH FACTOR 2.

120 HEPARIN (POTENTIAL).

120 HEPARIN (POTENTIAL).
                                                                                                                                                        .;
8
                                                                                                      Score 445; DB 1; Length 154;
                                                                                                                           Pred. No. 1.14e-81;
24; Mismatches 35; Indels
26 30 HEPARIN (POTENTIAL).
115 118 HEPARIN (POTENTIAL).
154 AA; 17153 MW; 689F677416274388 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              156 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                        1::| ||||||||:: |
161 GPRTHYGQKAILFLPLPVSS 180
                                                                                                                                                                                                                                                                                                                                                                                                         135 GSKTGPGQKAILFLPMSAKS 154
                                                                                                   74.2%;
Local Similarity 52.1%;
Local 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JT 13
FGF2_MONDO
P48798;
BINDING
BINDING
SEQUENCE
                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AS CCCCCC RABER SERVOSS REPUBLICA
  FT
                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SETTING DRANGE SOCIO
                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                         셤
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
ä
                                                                                                                                                                                      80 ANRYLAMKEDGRLLALKYVTEECFFFERLE----S-NNYNTYRSRKYS--NWYVALKRT 131
                                                 20 GAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGIREKSDPNIKLQLQAEERGVVSIKGVC 79
                                                                                01-0CT-1989 (Rel. 12, Created)
01-JAN-1990 (Rel. 13, Last sequence update)
01-NOV-1997 (Rel. 35, Last annotation update)
HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                embryo.";
Cell 51:869-877(1987).
-!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE; 89058621.

Kimelman D., Abraham J., Haaparanta T., Palisi T., Kirschner M.;

"The presence of fibroblast growth factor in the frog egg: its role as a natural mesoderm inducer.";

Science 242:1053-1056(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Xenopus laevis (African clawed frog).
Eukaryota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Amphibia; Batruchia; Anura; Mesobatrachia; Pipoidea; Pipidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE; 88052890.
Kimelman D., Kirschner M.;
"Synergistic induction of mesoderm by FGF and TGF-beta and the
identification of an mRNA coding for FGF in the early Xenopus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ..
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HEPARIN-BINDING GROWTH FACTOR 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 427; DB 1; Length 155;
Pred. No. 4.12e-77;
24; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRINTS; PR00262; ILLHBGF.
PRINTS; PR00263; HBGFFGF.
PROSITE; PS00247; HBGFFGF. 1.
Growth factor; Mitogen; Vascularization; Heparin-binding. PR0PBP 10 155 HEPARIN-BINDING GROWTH FACTO
Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).
MISSING (IN REF. 2).
036735C8063142FD CRC64;
38;
Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                155 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                             132 GQYKLGSKTGPGQKAILFLPMSAKS 156
                                                                                                                                                                                                                                                                                            25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       31
119
111 . . 17241 MW; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; M18067; AAA49726.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE OF 95-155 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    32.8%;
51.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity 51.4%;
Matches 72; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                             STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GROWTH FACTOR) (BFGF).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PIR; A29618; A29618.
PIR; A40117; A40117.
HSSP; P09038; 1BFF.
PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (enopodinae; Xenopus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         111 · 1
155 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FGF2 OR FGF-2.
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its most by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license elsewing the statement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ë
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Wilkles J.A., Friesel R., Alberts G.F., Janat M.F., Liau G.;
"Elevated expression of basic fibroblast growth factor in an immortalized rambit samoth muscle cell line.";
Am. J. Pathol. 143:518-527(1993).
-!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIGGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        41 ANYKRPKLLYCSNGGHFLRILPDGTVDGTRDKSDQHIQLQLSAESVGEVYIKSTETGQYL 100
                                                                                                                            -!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           70 ANRYLAMKEDGRLLASKCVTDECFFFERLE----S-NNYNTYRSRKYS--SWYVALKRT 121
                                                                                                   84 AMKEDGRLTSLRCITDECFFFERLE----A-NNYNTYRSRKYS--SWYVALKRIGQYKN 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10 GAFPPGHFKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHIKLQLQAEERGVVSIKGVC 69
24 GSFKDPKRLYCKNGGFFLRINSDGRVDGSRDKSDSHIKLQLQAVERGVVSIKGITANRYL 83
                                                                                                                                                                                                                                                                                                                                                                                                                                          01-FEB-1996 (Rel. 33, Last sequence update)
1-FEB-1996 (Rel. 33, Last annotation update)
1-FEB-1996 (Rel. 33, Last annotation update)
1-FEB-1996 (Rel. 33, Last FACTOR 2 (HBGF-2) (BASIC FIBROBLAST GROWTH
1-FACTOR) (BFGF) (PROSTATROPIN) (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Oryctolagus cuniculus (Rabbit).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 407; DB 1; Length 137; Pred. No. 4.52e-72;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              F0016/; FGF; 1.
?: PS00247; HEGF_FGF; 1.
factor; Mitogen; Vascularization; Heparin-binding.
factor: Mitogen; Vascularization; Heparin.
18 22 HEPARIN (POTENTIAL).
3 1.0 HEPARIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      35; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                137 AA; 15418 MW; 0D9EE457B88E8C51 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
STRAIN-NEW ZEALAND WHITE; TISSUE-SMOOTH MUSCLE;
MEDLINE; 93343209.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      24; Mismatches
                                                                                                                                                                                                                                                                                                                                                                    137 AA
                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                    1-FEB-1996 (Rel. 33, Created)
                                                                                                                                                                                                          136 GSSTGPGQKAILFLPMSAKS 155
                                                                                                                                                                                                                                                          161 GPRTHYGOKAILFLPLPVSS 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 31.3%; silarity 50.7%; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; L12034; AAA31248.1; -. HSSP; P09038; 1BFF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 122 GQYKLGSKTGPGQKAI 137
                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SUBUNIT: MONOMER
                                                                                                                                                                                                                                                                                                                                                                    FGF2_RABIT
P48799;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PROSITE;
Growth fa
                                                                                                                                                                                                                                                                                                                                           72
                                                                                                                                                                                                                                                                                                                                      RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RAN RAN F.F.F. S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               유
                                                                                                 a
                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                          ò
                                                ò
                                                                                                                                                       ò
```

```
| | | |::| |||||
156 GSCKRGPRTHYGQKAI 171
```

Search completed: Tue Aug 29 15:45:49 2000 Job time: 29 secs.

*****	(TM)	****
****		***
***		****
*******	[	*******
******		*****
********		*****
***************************************		
*******		*****
********		****
*		*

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

protein - protein database search, using Smith-Waterman algorithm MPsrch\_pp

Tue Aug 29 15:46:07 2000; MasPar time 16.81 Seconds 746.641 Million cell updates/sec ou:

>US-09-121-017B-5 (T-181) from US09121017B.pep 1300 1 MSRGAGRVQGTLQALVFLGV.....PRTHYGQKAILFLPLPVSSD 181 ular output not generated. Title: Description: Perfect Score:

Sequence:

PAM 150 Gap 11 Scoring table:

Searched:

225878 seqs, 69334122 residues

Minimum Match 0% Listing first 45 summaries Post-processing:

Database:

Tisp\_archea 2:sp\_bacteria 3:sp\_fungi 4:sp\_human 5:sp\_invertebrate 6:sp\_nammal 7:sp\_nhc 8:sp\_organelle 9:sp\_phage 10:sp\_plant 11:sp\_rodent 12:sp\_unclassified 13:sp\_vertebrate 14:sp\_virus sptremb112

Mean 43.003; Variance 69.719; scale 0.617 Statistics:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Pred. No.
Description
Descr
QI
th DB
Query Match Length DB
:
Score
Mesult No.

ä

엄 ò

2.24e-16 2.37e-15 3.79e-15	3.92e-13 1.55e-12 1.55e-12	2.45e-12 2.35e-11	3.69e-11 1.41e-10	5.35e-10	3.11e-09 4.32e-06	3.76e-03	2.47e-02	3.57e-02	1.06e-01	1.06e-01	1.53e-01	1.53e-01	2.18e-01	4.41e-01	3.11e-01	4.41e-01	4.41e-01
R33683_2. FIBROBLAST GROWTH FACT FGF HOMOLOG.	LET-756 PROTEIN. FIBROBLAST GROWTH FACT FIBROBLAST GROWTH FACT	GROWTH	FGF-ACMNPV ORF32. FIBROBLAST GROWTH FACT	GROWTH	FIBROBLAST GROWTH FACT FIBROBLAST GROWTH FACT	۵.		H	CONSERVED HYPOTHETICAL	PUTATIVE.	M151.5 PROTEIN.	PUTATIVE STRESS PROTEI	PFC0245C PROTEIN.	HYPOTHETICAL 14.5 KD P	DOPA DECARBOXYLASE.	DEVELOPMENTAL REGULATO	FH1/FH2 PROTEIN HOMOLO
060371 P79925 P91672	035340	057341	092401	042278	09YMH2	027154	Q9YEE7	062682	025299	092LQ6	017120	Q92034	097239	095329	016895	000760	P78621
13	313	13	7 7	13	4 9	-	-	ဖ	~	7	Ŋ	2	'n	4	'n	m	m
129 200 770	425 78 204	210 216 216	182	210	73	823	211	82	232	232	456	611	3933	127	487	980	1790
13.5 13.2 13.1	12.3	12.9	11.5	11.1	F 0.6	8.2	7.8	7.7	7.5	7.5	7.4	7.4	7.3	7.2	7.2	7.2	7.2
171	157	156	150	144	123	106	101	100	97	97	96	96	95	93	94	93	93
22 23 23	222	27	30	31	33	34	35	36	37	38	39	40	41	42	43	44	45

## ALIGNMENTS

ë,

Gaps

œ •

27; Indels

Length 101;

유 ò a ò Separa

RA RA RA RA RA DR RA DR

셤 ò ద ŏ 

```
Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Archosauria; Aves;
Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MITRANI E., GRUENBAUM Y., SHOHAT H., ZIV T.; "Fibroblast growth factor during mesoderm induction in the early chick
                                                                                                                                                                                  46 PKLLYCSNGGHFLKILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYLAMDTD 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 PKRLYCKNGGFFLRINSDGKVDGAREKSDSYIKLOLOAEERGVVSIKGVCANRYLAMKDD 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    45 ERVSAMVKLQLQAEERGVVSIKGVSANRFLAMKEDGRLLALKCATEECFFFERLE---- 99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           016089 PRELIMINARY; PRT; 59 AA.
016089 OTEMBLE. 01, Created)
01-NOV-1996 (TrEMBLE. 01, Last sequence update)
01-NOV-1996 (TrEMBLE. 12, Last annotation update)
ACIDIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100 S-NNYNTYRSRKYSD--WYVALKRTGQYKPGPKTGPGQKAILFLPMSAKS 146
                                                                                                                                                                                                                                   61 GRIMALKWITDECFFFERLE----S-NNYNTYRSRKYSD--WYVALKR 101
                                                                                                                                                                                                                                                        : |:|||| |:| |: |:||:| | |||||||||||: |
131 APNHYNTYISKKHAEKNWFVGLKKNGSCKRGPRTHYGQKAILFLPLPVSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
MEDLINE; 93246053.
BORJA A.Z., ZELLER R., MELJERS C.;
"Expression of alternatively spliced bFGF first coding antisense mRNAs during chicken embryogenesis.";
                                                                                                                                                                                                                                                                                                                                                                                                 Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 283; DB 13;
Pred. No. 8.07e-40;
21; Mismatches 31;
                                                                                        Score 319; DB 13;
Pred. No. 3.82e-48;
                                                    1CD93BB0 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       146 AA; 16182 MW; 44C5274B CRC32;
                                                                                                                            19; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                Created)
                                 101
11907 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Development 109:387-393(1990).
EMBL, WB5706; AAA48616.1; -.
EMBL; X56804; CAA40139.1; -.
HSSP; P09038; ZBF1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Dev. Biol. 157:110-118(1993).
                                                                                                                                                                                                                                                                                                                                                                              (TrEMBLrel. 01, (TrEMBLrel. 01,
                                                                                                                                                                                                                                                                                                                                                                                                                  (TrEMBLrel. 12,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           y Match
Local Similarity 45.5%;
hes 50; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       [2]
SEQUENCE OF 52-85 FROM N.A.
                                                                                        24.5%;
50.5%;
                                                                                                                            55; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                01-NOV-1999 (TrEMBLrel. 1. FIBROBLAST GROWTH FACTOR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PROSITE; PS00247; HBGF_FC
PFAM; PF00167; FGF; 1.
PRINTS; PR00262; IL1HBGF
                                                                                                                                                                                                                                                                                                                                          PRELIMINARY;
PFAM; PF00167; FGF; 1.
                                 101 1
101 AA;
                                                                                      Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           90382254.
                                                                                                                                                                                                                                                                                                                                                                            01-NOV-1996
01-NOV-1996
                               NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              embryo.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                         007659
                  NON_TER
                                                                                                                                                                                                                                                                     106
                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                               g
SFF
                                                                                                                                                             d
                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OS EPH PROS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ä
                                 110 RGVVSIKGVCANRYLAMKEDGRLLASKCVTDECFFFERLE----S-NNYNTYRSRKYT- 162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61 KEDGRLLASKCVTDECFFFERLE ----S-NNYNTYRSRKYS--SWYVALKRTGQYKLGP 112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 FKDPKRLYCKNGGFFLRIHPDGRVDGVREKSDPHVKLQLQAEERGVVSIKGVCANRYLAM 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TISSUE=EMBRYO;
SUZUKI A.S., TABATA T., SAKAGUCHI K., TAKABATAKE T., TAKESHIMA K.,
KANEDA T.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "Serial expression of the genes in a mesodermalizing ectoderms early Cynops gastrula."; Submitted (NOV-1996) to the EMBL/GenBank/DDBJ databases. EMBL; D89443; BARA1358.1; -. HSSP; P09038; 2BFH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .
6
                                                                                                                                                                                                                                                                                                                  Canis familiaris (Dog).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Carnivora; Fissipedia; Canidae; Canis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASIC FGF (FRAGMENT).
Cynops pyrthogaster (Japanese common newt).
Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Amphibia;
Batrachia; Caudata; Salamandroidea; Salamandridae; Cynops.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 448; DB 6; Length 130;
Pred. No. 5.93e-79;
22; Mismatches 35; Indels
                                                                                                                                                                                                                                                                                                                                                                                                          TISSUE-ADRENAL GLAND;
TROCHTA O.A., JACOBS R.M., LAMARRE J.;
TROCHTA O.A., JACOBS R.M., LAMARRE J.;
Submitted (APR-1998) to the EMBL/GenBank/DDBJ databases.
EMBL, AF060562; ARC35312.1;
HSSP; P09038; IBFF.
PROSITE; PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                              01-NOV-1998 (TrEMBLrel. 08, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
BASIC FIBROBLASI GROWTH FACTOR (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-MAY-1997 (TrEMBLrel. 03, Created)
01-MAY-1997 (TrEMBLrel. 03, Last sequence update)
01-NOV-1999 (TEMBLrel. 12, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          130 130 130 130 130 AM; · DB6A90A4 CRC32;
                                                                                                       163 -SWYVALKRTGQYKLGSKTGPGQKAILFLPMSAKS 196
                                                                                                                                                                                             130 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             101 AA
                                                                                                                                                                                                                               Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PROSITE; PS00247; HBGF_FGF; 1
                                                                                                                                                                                                                            01-NOV-1998 (TrEMBLrel. 08, 01-NOV-1998 (TrEMBLrel. 08, 01-NOV-1999 (TrEMBLrel. 12,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  113 KTGPGQKAILFLPMSAKS 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            163 RIHYGOKAILFLPLPVSS 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 34.5%;
Best Local Similarity 52.9%;
Matches 73; Conservative
                                                                                                                                                                                            PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PF00167; FGF; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                       LT 2
077767
077767;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          T. 3
P79706
P79706;
```

and

exons

ä,

Gaps

.; 6

Indels

31;

Length 146;

ö

```
PRT;
                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                  Query Match 20.3%;
Best Local Similarity 97.2%;
Matches 35; Conservative
                                                                                                                                                                                                                                                                                                                                                PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
 musculus (Mouse).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A. MEDLINE; 97330690.
                                                                                                                                                                                                                                                                                                                                 O42407
O42407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LT 9
060487
060487;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     178
                                                                                                                                                                                                                                                                                                                                 RESULT
  g
                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEPPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                     ZHAO X.M., YEOH T.K., HIEBERT M., FRIST W.H., MILLER G.G.;
"The expression of acidic fibroblast growth factor (heparin-binding growth factor-1) and cytokine genes in human cardiac allografts and cells.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
MEDLINE; 94069734.
MEDLINE; 94069734.
THAD X.M., YEOH T.K., HIEBERT M., FRIST W.H., MILLER G.G.;
"The expression of acidic fibroblast growth factor (heparin-binding growth factor-1) and cytokine genes in human cardiac allografts and
                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TURCK E.J.;
"An acidic fibroblast growth factor protein generated by alternate splicing acts like an antagonist.";
"Exp. Med. 175:1073-1080(1992).
EMBL; S67792; AAB290781;
EMBL; X6779; CAA46662.1;
HSSP; P05230; ZAXM.
PFAN: PF00167; FGF; 1.
NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
MEDLINE: 92202857.
LI Y.L., KHA H., GOLDEN J.A., MIGCHIELSEN A.A.J., GOETZL E.J.,
                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                   Length 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 60,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3; Indels
                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-JUN-1998 (TrEMBLrel. 06, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
FIBROBLAST GROWTH FACTOR-1 (FRAGMENT)
                                                                                                                                                                                                                                                                                                                                                                                   01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
ACIDIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHTD 58
Eutheria; Primates; Catarrhini; Hominidae; Homo
                                                                                                                                                                                                              Score 266; DB 4; I
Pred. No. 6.01e-36;
                                                                                                                                                                                                                                                                                       18 LPPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQH 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 267; DB 4;
Pred. No. 3.57e-36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2; Mismatches
                                                                                                                                                                                                                             Pred. No. 6.01e-
1; Mismatches
                                                                                                                                                                                   1C932B1D CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ź
                                                                                                                                                                                                                                                                                                                                                             60 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                054837;
01-JUN-1998 (TrEMBLrel. 06, Created)
01-JUN-1998 (TrEMBLrel. 06, Last seq
01-NOV-1999 (TrEMBLrel. 12, Last ann
                                                                                                            Transplantation 56:1177-1182(1993).
EMBL; S67294; AAB29059.1; -.
HSSP; P05230; 2AXM.
PF00167; FGF; 1.
NON_TER 59 59
SEQUENCE 59 AA; 6595 MW; 1C932B
                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cells.";
Transplantation 56:1177-1182(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20.5%;
llarity 87.8%;
Conservative
                                                                                                                                                                                                                20.5%;
ilarity 92.3%;
Conservative
                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity
Matches 36; Conserv
                                                                                                                                                                                                                             Local Similarity
nes 36; Conser
                            SEQUENCE FROM N.A
                                                                                                                                                                     NON_TER
SEQUENCE
                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
```

T 6

RESULT

Best Loca Matches

```
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Archosauria; Aves;
Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OHUCHI H., NAKAGAWA T., YAMAMOTO A., ARAGA A., OHTA T., ISHIMARU Y., YOSHIOKA H., KURANA T., NOHNO T., YAMAGAKI M., ITOH N., NOJI S.;
YOSHIOKA H., KURANA T., NOHNO T., YAMAGAKI M., ITOH N., NOJI S.;
"The mesenchymal factor, FGF10, initiates and maintains the outgrowth of the chick limb bud through interaction with FGF8, an apical ectodermal factor.";
Development 124:2235-2244(1997).
EMBL: D86333; BAZ4945-1; -.
HSSP; P03968; IBAR.
PRINTS; PR00263; HBGFFGE.
SEQUENCE 212 AA; 23631 MW; C8AB1883 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       64 PSSAGRHVRSYNHLQGDVRKRKL-Y-SYNKYFLKIEKNGKVSGTKKENCPFSILEITSVE 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       122 IGVVAVKSIKSNYYLAMNKKGKVYGSKEFNSDCKLKERIEENGY---NTYAS-LNWKHNG 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 19.8%; Score 258; DB 13; Length 212; Best Local Similarity 34.2%; Pred. No. 3.85e-34; Matches 53; Conservative 36; Mismatches 59; Indels
                                                                                                                                                                                                                                                                                                                                                                                                      Length 70;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                  SECUENCE FROM N.A.
STRAIN-C3H/HEN; TISSUE-LIVER;
STRAIN-C3H/HEN; TISSUE-LIVER;
SUBMILTED (JUL-1997) to the EMBL/GenBank/DDBJ databases.
EMBL; AF012926; AAB94020.1; -.
HSSP; P05230; ZAXM.
PFAM; PF00167; FGF; 1.
NON-TER 70 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-JAN-1998 (TrEMBLrel. 05, Created)
01-JUN-1998 (TrEMBLrel. 06, Last sequence update)
01-UNV-1999 (TrEMBLrel. 12, Last annotation update)
FIBROBLAST GROWTH FACTOR 10
Gallus gallus (Chicken)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
Cavia porcellus (Guinea pig).
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ...
                                                                                                                                                                                                                                                                                                                                                                                                Score 264; DB 11;
Pred. No. 1.70e-35;
1; Mismatches 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NON_TER 70 70 SEQUENCE 70 AA; 7677 MW; 15A1BE5E CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            35 GNYKKPKLLYCSNGGHFLRILPDGTVDGTRDRSDQH 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ROMFVALNGRGATKRGQKTRRKNTSAHFLPMVVMS 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               212 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     115 AA
```

ر. د.

JT 7 054837

요 ò

STREE

RESULT ID 05 AC 05 DT 01 DT 01 DE FI

```
DD TTD DD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 엄
  ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BRUGGEMEIER R.W., LIN Y.C.;

"Keratinocyte growth factor (KGF/FGF-7) has a paracrine role in canine prostate: molecular choning of mRNA encoding canine KGF.";

DNA Cell Biol. 15:247-254(1996).

EMBL; U80800; AAB38972.1;

HSSP; P05230; 2AFG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        99 YLAMDTDGLLYGSQTPNEECLFLERLEEAATPAPNHYNTYIS-K-KHAEKNWFVGLKKNG 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          118 YLAMNKEGKLYAKKECNEDCNFKE-L---ILE-NHYNTYASAKWTHSGGEMFVALNQKG 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 59 MEGGDIRVRRLFCRTQ-WYLRIDKRGKVKGTQEMKNSYNIMEIRTVAVGIVAIKGVESEY 117
                                                                                                                                                                                                                                                                                                                                                                                                                                        39 LDANYKRPKLLYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQ 98
                                                                                                                                                                                                                                                                                                                                                                                                               1 GFFLRIHPDGRVDGVREKTDPHIKHNFKPKA-EELCYQGSLSNRYLAMKEDGRLLASKCV 59
                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                    6
Chordata; Craniata; Vertebrata; Mammalia;
Hystricognathi; Caviidae; Cavia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Carnivora; Fissipedia; Canidae; Canis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE; 96226403.
CANATAN H., CHANG W.Y., SUGIMOTO Y., SHIDAIFAT F., KULP S.K.,
                                                                                                                                                                                                                                                                                                                     Length 115;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 194;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 242; DB 6; Length 194
Pred. No. 1.47e-30;
32; Mismatches 53; Indels
                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98
                                                                                                            RICCIARDELLI C.;
Submitted (JAN-1996) to the EMBL/GenBank/DDBJ databases.
EMBL; L75974; AAA85394.1; -.
HSSP; P09038; 2BFH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60 TDECFFFERLE----S-NNYNTYRSRKYS--SWYVALKRTGQYKLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                   Score 250; DB 11; L
Pred. No. 2.41e-32;
23; Mismatches 30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PROSITE; PS00247; HBGF_FGF; 1.
PFAM; PF00167; FGF; 1.
PRINTS; PR002625; IL1HBGF.
SEQUENCE 194 AA; 22476 MW; 2B71A8ED CRC32;
                                                                                                                                                                                                                                                                         SEQUENCE 115 AA; 13495 MW; 4B12914A CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       252 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           194 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-MAY-1997 (TrEMBLrel. 03, Created)
01-MAY-1997 (TrEMBLrel. 03, Last seq.
01-NOV-1999 (TrEMBLrel. 12, Last ann
KERATINOCYTE GROWTH FACTOR.
Canis familiaris (Dog).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             172 VPVRGKKTKKEQKTAHFLPMAIT 194
                                                                                                                                                                                                     PROSITE; PS00247; HBGF_FGF; 1.
PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                   h 19.2%;
Similarity 42.1%;
45; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity 34.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         49; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRELIMINARY;
                       Sutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
Matches 45; Conser
                                                                 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A
                                                                                         LISSUE-PROSTATE;
                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LT 11
089096
089096;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JT 10
P79150
P79150;
                                                                                                                                                                                                                                                 NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
SORRAGERE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                 _$\display
```

```
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Archosauria; Aves;
Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    49 LYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYLAMDTDGLL 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              136 YSSDVFTPECKFKESVFENTYVI-YSSTLY-RQQESGRAWFLGLNKEGQIMKGNRVKKTK 193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           139 YPSELFTPECKFKESVFENYYVI-YSSMLY-RQQESGRAWFLGLNKEGQVMKGNRVKKTK 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            77 LF-SQQEYFLQMHPDGTIDGTKDENSDYTLFNLIPVGLRVVAIQGVKAGLYVAMNAEGYL 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 80 LYCRQG-YYLQMHPDGALDGTKDDSTNSTLFNLIPVGLRVVAIQGVKTGLYIAMNGEGYL 138
                                                                                                                                                                                                                                                     TISSUE=BRAIN;
MEDLINE; 98267141.
YAMAMOTO S., MIKAMI T., OHBAYASHI N., OHTA M., ITOH N.;
"Structure and expression of a novel isoform of mouse FGF homologous
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MUNOZ-SANJOAN I., SIMANDL B.K., FALLON J.F., NATHANS J.;
"Expression of chicken fibroblast growth factor homologous factor (FHF)-1 and of differentially spliced isoforms of FHF-2 during development and involvement of FHF-2 in chicken limb development. 126:409-421(1999).

EMBL. AF108754; AAD21575.1;

PROSITE; PSO0247; HBGF_EGF; 1.

SEQUENCE 243 AA; 27455 MW; A9E6EBCD CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             / Match 17.5%; Score 227; DB 13; Length 243; Local Similarity 30.8%; Pred. No. 3.03e-27; nes 40; Conservative 30; Mismatches 57; Indels 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .,
m
                                                                                                                                        Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 252;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 240; DB 11; Length 25:
Pred. No. 4.09e-30;
24; Mismatches 59; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-NOV-1999 (TrEMBLrel. 12, Created)
01-NOV-1999 (TrEMBLrel. 12, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
FIBROBLAST GROWTH FACTOR 12 ISOFORM A.
                          08, Last sequence update)
12, Last annotation update)
                                                                                                             Rattus norvegicus (Rat), and Mus musculus (Mouse).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HSSP; P03968; IBAR.
PROSITE; PS00247; HBGF_FGF; 1.
PFAM; PF00167; FGF; 1.
SEQUENCE 252 AA; 28364 MW; IDFD5B4B CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 243 AA
                                                                                                                                                                                                                                                                                                                                                                     factor (FHF)-4.";
Blochlim. Blophys. Acta 1398:38-41(1998)
EMBL; AB008908; BAA31544 1; -
EMBL; AB008907; BAA31543.1; -
Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity 33.8%;
Matches 44; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRELIMINARY;
                       01-NOV-1998 (TrEMBLrel. 01-NOV-1999 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gallus gallus (Chicken)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            197 PAAHFLPKPL 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  169 KAILFLPLPV 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A. MEDLINE; 99065510.
                                                                                                                                                                                                                          SEQUENCE FROM N.A.
01-NOV-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q9W6A1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LT 12
Q9W6A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Loc
Matches
```

3,

÷

S

```
Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 15
1D 099517
DT 099517
DT 01-MAY-1
DT 01-MAY-1
DE FIBROBLA
GN FGF12.
GN FGF12.
GN EMBRY
CC EUTHARTO
CC EUTH
                                              Best Loca
Matches
                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       염
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ë,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Archosauria; Aves;
Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TISSUE-BRAIN;
MEDLINE; 99168751.
GEZ. J., BARER E., DONNELLY A., MING J.E., MCDONNALD-MCGINN D.M.,
GEZ. J., BARER E., DONNELLY A., MING J.E., MULLEY J.C.;
FIDIODIAST GROWTH factor homologous factor 2 (FHF2): gene structure,
expression and mapping to the Borjeson-Forssman-Lehmann syndrome
region in Xq26 delineated by a duplication breakpoint in a BFLS-like
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       79 YTSELFTPECKFKESVFENYY-VTYSSMIY-RQQQSGRGWYLGLNKEGEIMKGNHVKKNK 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SQUENCE FROM N.A.

SEQUENCE FROM N.A.

MEDLINE; 99065510.

MUNOZ-SANJUAN I., SIMANDL B.K., FALLON J.F., NATHANS J.;

"Expression of chicken fibroblast growth factor homologous factor (FFF) I and of differentially spliced isoforms of FHF-2 during development and involvement of FHF-2 in chicken limb development.";

Development 126:409-421(1999).

EMBL; AF108755; AAD21576.1; --

PROSITE; PS00247; HBGF_FGF; 1.

PROSITE; PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 223; DB 4; Length 192;
Pred. No. 2.28e-26;
27; Mismatches 59; Indels 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                              01-MAY-1999 (TrEMBLrel. 10, Created)
01-MAY-1999 (TrEMBLrel. 10, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
FIBROBLAST GROWTH FACTOR 13 ISOFORM 1B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-NOV-1999 (TrEMBLrel. 12, Created)
01-NOV-1999 (TrEMBLrel. 12, Last Sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
FIBROBLAST GROWTH FACTOR 13 ISOFORM 15.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hum. Genet. 104:56-63(1999).

EMBL; AF100144; AAD16401.1; -.

HSSP; P03968; 1AFC.

SEQUENCE 192 AA; 21580 MW; 9AD05A36 CRC32;
                                                                                                                                                                                                                                                                                                                                      192 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     245 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 17.2%;
Best Local Similarity 31.5%;
Matches 41; Conservative
                                                                                                                                                                                                                                                                                                                                 PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens (Human)
                                                                                                                                 169 KAILFLPLPV 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             137 PAAHFLPKPL 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     169 KAILFLPLPV 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                    194 PSSHFVPKPI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LT 14
Q9W6A2
Q9W6A2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  patient.
                                                                                                                                                                                                                                                                                        JT 13
                                                                                                                                                                                                                                                                                  RESULT
1D 09
AC 09
AC 09
DT 01
DT 01
DT 01
CGN FG CGN FG
CCN FG CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
CCN FG
C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SULT
                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SO OR REPARED OF SO OR S
                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
```

```
ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ä
                                                                                                              73 LYSRQGYH-LQLQADGTIDGTKEEDSSYTLFNLIPVGLRVVAIQGVQTKLYLAMNSEGYL 131
                                                                                                                                                                        132 YTSEHFTPEČKFKESIFENYY-VTYSSMIY-RQQQSGRGWYLGLNKEGEIMKGNHVKKNK 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          49 LYCSNGGHFLRILPDGTVDGTRDRSDQHIQLQLSAESVGEVYIKSTETGQYLAMDT)GGL 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 YSSDVFTPECKFKESVFENYYVV-YSSTLY-RQQESGRAWFLGLNKEGQIMKGNRVKKTK 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2 LF-SQOGYFLQMHPDGTIDGTKDENSDYTLFNLIPVGLRVVAIQGVKASLYVAMNGESYL 60
                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3; Caps
                                               <u>ښ</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Σ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalla;
Eutheria; Primates; Catarrhini; Hominidae; Homo.
  Length 245;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COULIER F., PONTAROTTI P., ROUBIN R., HARTUNG H., GOLDFARB BIRNBAUM D.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length, 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 222; DB 4; Length.127
Pred. No. 3.77e-26;
29; Mismatches 57; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                               01-WAY-1997 (TrEMBLrel. 03, Created)
01-WAY-1997 (TrEMBLrel. 03, Last sequence update)
01-NOV-1999 (TrEMBLrel. 12, Last annotation update)
FIBROBLAST GROWTH FACTOR 12 (FRAGMENT).
Score 223; DB 13;
Pred. No. 2.28e-26;
28; Mismatches 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           127
127 AA; 14478 MW; 10E2842D CRC32;
                                                                                                                                                                                                                                                                                                                                                                                         127 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Search completed: Tue Aug 29 15:47:19 2000 Job time: 72 secs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               J. MOl. Evol. 0:0-0(0).
EMBL, 270276; CAA94240.1; -.
HSSP; P03968; LAFC.
PROSITE; PS00247; HBGF_FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ouery Match 17.1%;
Best Local Similarity 31.0%;
Matches 40; Conservative
  / Match 17.2%;
Local Similarity 30.8%;
                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PFAM; PF00167; FGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens (Human).
                                                                                                                                                                                                                                                           190 PAAHFLPKPL 199
                                                                                                                                                                                                                                                                                                   169 KAILFLPLPV 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         119 PSSHFVPKP 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    169 KAILFLPLP 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NON_TER
SEQUENCE
```